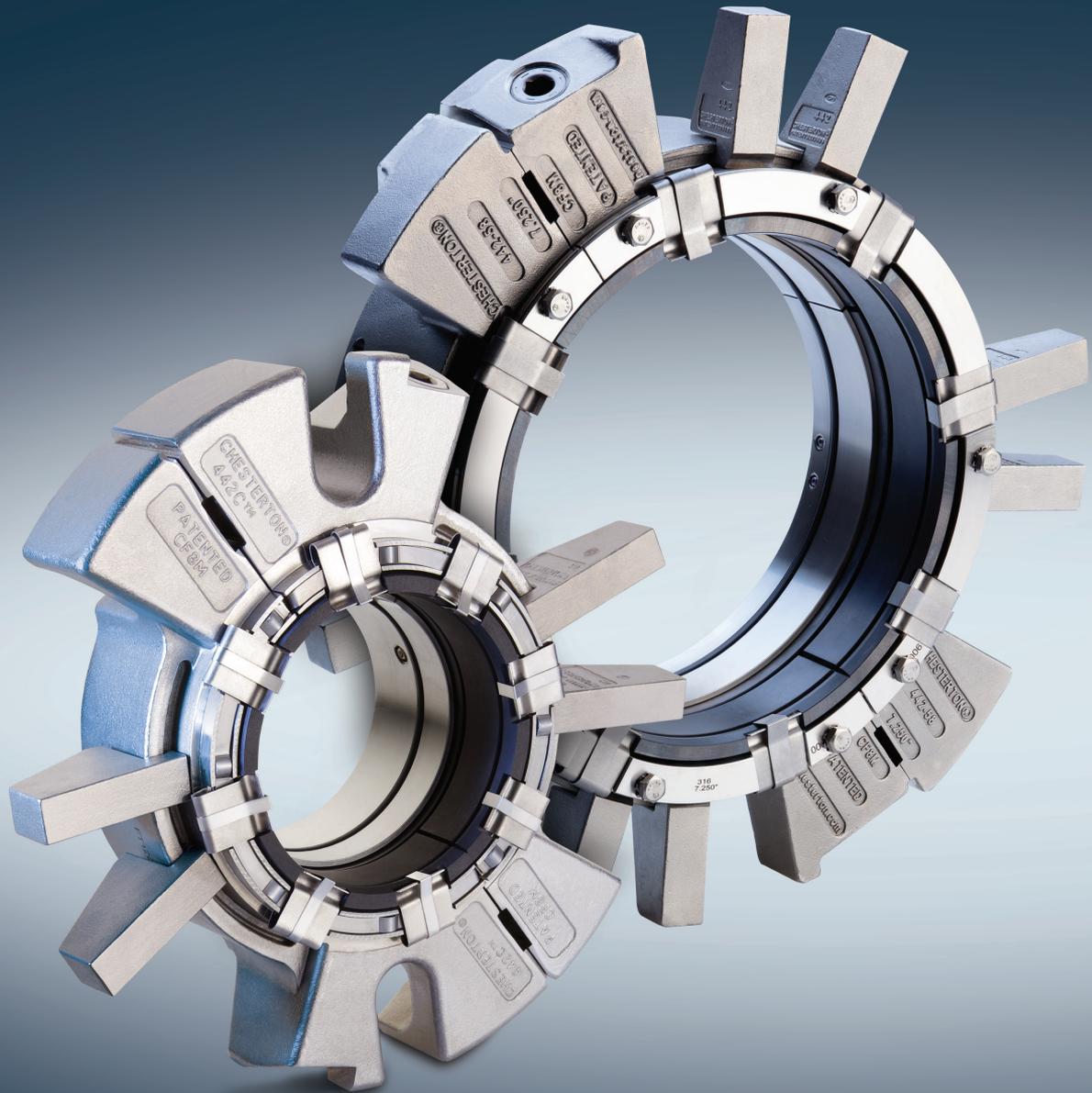


442C™ AND 442C™ XL CARTRIDGE SPLIT MECHANICAL SEALS

SIMPLE INSTALLATION AND GREATER SEALING RELIABILITY





Why Use a Chesterton® Split Seal?

- Installs without tearing down your equipment
- The compact design fits most equipment
- Easily upgrade from packing, often without replacing worn sleeves
- Reduce or eliminate flush water usage
- Increase equipment availability and productivity
- Can be repaired in the field simply and quickly
- Proven reliability across many industries and applications

Time-Saving and Reliable Sealing Solution

442C™ AND 442C™ XL CARTRIDGE SPLIT MECHANICAL SEALS

The Chesterton 442C and 442C XL Cartridge Split Mechanical Seals provide superior mechanical seal performance with the simple, time-effective installation of a cartridge split seal. Available in a wide range of sizes, our standard split seals fit many applications, reduce overhaul times, and help increase productivity.

Proven Success

With over 10,000 Chesterton split seals installed and operating globally, you can be confident in your adoption of this technology.

Significant Installation/ Maintenance Savings

The split seal design allows for installation in hours—not days—with preassembled components that easily fit your equipment. There is no dismantling of pumps, a task which can be unthinkable especially in some applications such as hydro turbines. Once installed, the seal requires minimal maintenance, unlike packing.

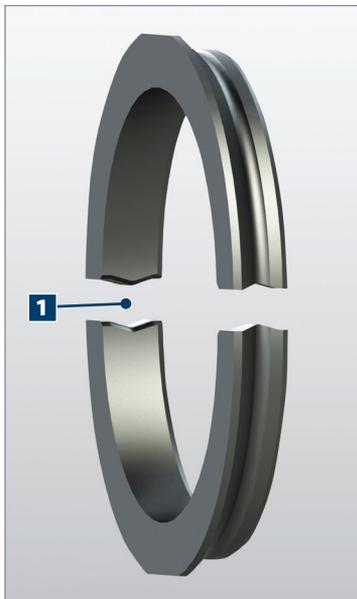


The 442C Cartridge Split Seal family has only two primary components and offers superior sealing reliability.

Field-Repairable for Lower Inventory Costs

Chesterton spare parts kits ensure that your split seal never has to leave your facility. Unlike other split seal designs that require multiple measurements, elastomers modifications, and glue to keep components together, the 442C and 442C XL is configured to be repaired in the field to minimize your plant turnaround efforts and downtime and to save on inventory costs.

Superior Design for Ease of Use



1 Interlocking Faces

The design of Chesterton's 442C Split Cartridge Seal product family offers many advantages and encompasses expertise gained from 10,000 installations around the world. We focus on sealing solutions that are simple, repeatable, and reliable.

Patented Interlocking Face

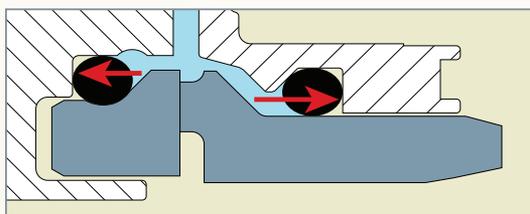
Precision split, flatness guaranteed. Reliable sealing is directly related to face flatness. Our patented interlocking face keys the mating halves together. You'd never know it was split if we didn't tell you!

Self-Aligning Face Design

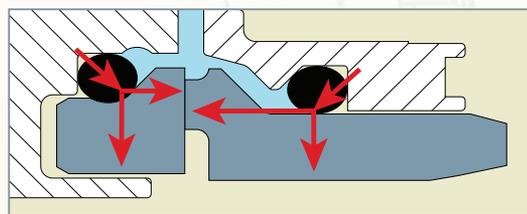
Efficient, accurate installation. The alignment of the seal faces takes place as the gland assembly is installed around the rotary. The result is face alignment without the need to handle the faces or make adjustments.

Reliable Sealing during Pressure-to-Vacuum Shifts

Patented ramped design keeps seal face splits together under pressure and vacuum conditions.



Under pressure conditions, the seal ring halves are forced together.



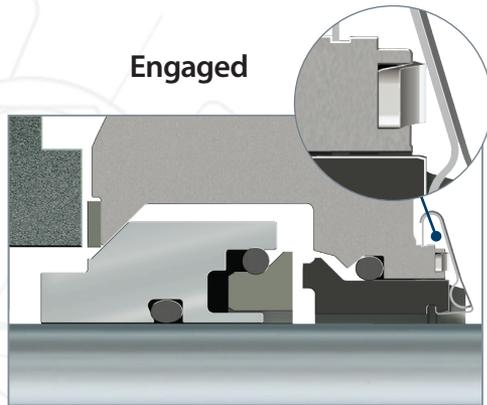
Under vacuum conditions, atmospheric pressure acts on O-Rings, forcing them against the ramped surfaces of the seal faces.

Size Range Specific Installation

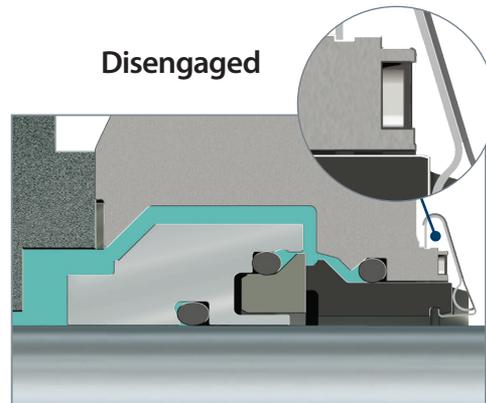
The 442C and 442C XL feature unique installation tools and instructions that ensure repeatable start-up success. It is the attention to detail and years of experience that make Chesterton split seals, the split seal your equipment would choose.

Spring Lifter and Spring Carrier

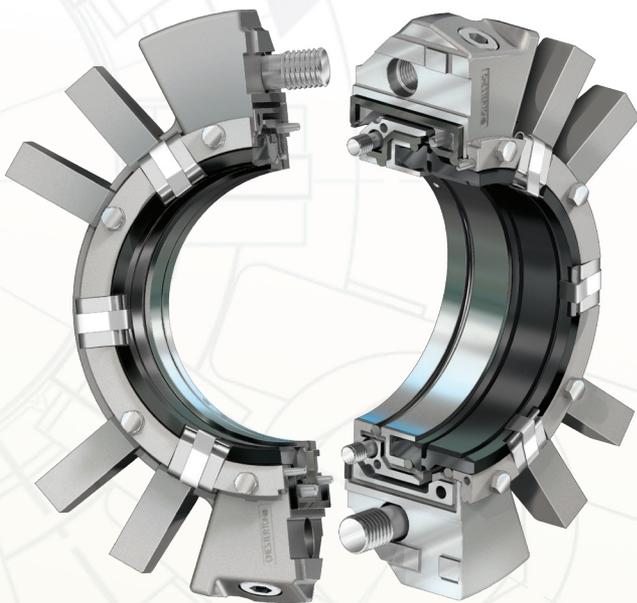
Protect the flatness, see the success. By ensuring maximum clearance between the precision lapped and split faces, this feature engages the faces only when they are parallel to each other which energizes the external Elgiloy® springs. The spring lifter is found on the 442C and the spring carrier is found on the 442C XL.



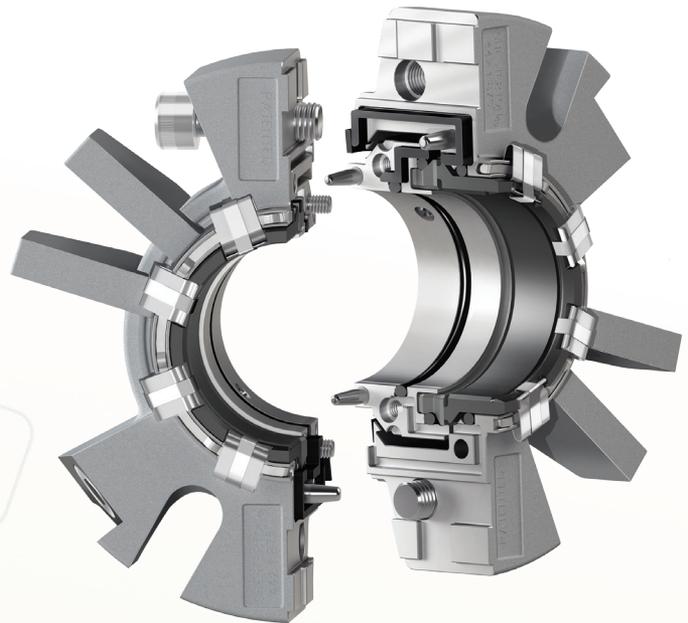
The spring lifter is engaged and retracts the stationary face, providing ample space between the seal faces for ease of installation.



After installation, the spring lifter automatically disengages while the gland halves are assembled, initiating spring force between the two seal faces.



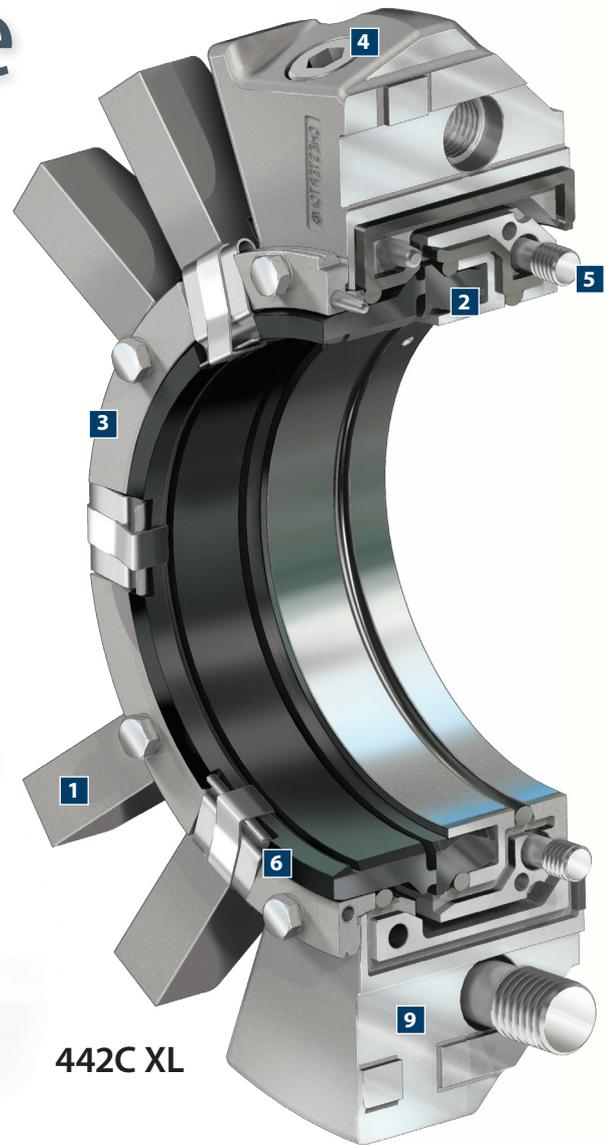
The 442C XL suits equipment shafts from 125 mm (5.00") up to 195 mm (7.75") and features the spring carrier.



The 442C suits equipment shafts up to 120 mm (4.75") and features the spring lifter.

Experience That Makes the Difference

Chesterton's in-depth knowledge and years of experience in split seal engineering design have enabled us to deliver superior features and benefits for the 442C and 442C XL that our customers can depend on.



442C XL

Operating Parameters

Sizes	25 mm – 195 mm (1.000" – 7.750")
Pressure*	711 mm (28") Hg Vacuum – 30 bar g (450 psig)
Temperature	To 120°C (250°F)
Speed, Wet	To 20 m/s (4,000 fpm)

Standards and Approvals: ISO-3069-S, ASME B73.1, ASME B73.2, NSF-61

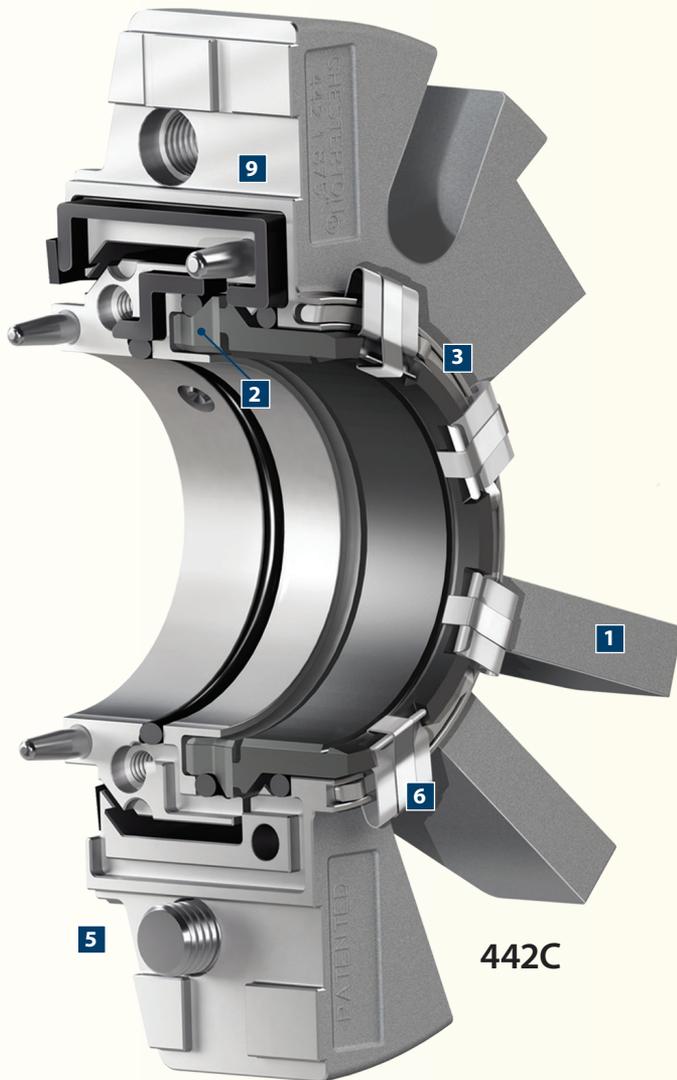
*Seal pressure capabilities are dependent on the fluid sealed, temperature, speed, and seal face combinations.

Consult Chesterton Engineering for additional material options, applications exceeding published operating parameters, and for additional seal sizes.

Materials of Construction

Component	Standard Materials
Faces	CB, RSC, CR
Elastomers	FKM, EPDM, FEPM, FFKM
Metals	EN 1.4401 (316SS)
Springs	Elgiloy®

442C AND 442C XL SPLIT SEAL FEATURES AND BENEFITS



1 Patented Adjustable Gland

Easy adjustment to suit your equipment bolting pattern.

2 Patented Interlocking Face Alignment

Superior face flatness.

3 Patented Spring Lifter and Spring Carrier

Provides increased installation protection and security for seal faces during installation. The faces only make contact when they are parallel to each other.

4 Integral Flush Ports

Maximum flushing and venting capability is provided via two ports 180° apart.

5 Patented Captured Fasteners

Installation is made easy. All fasteners remain in the gland and rotary holder during installation.

6 Non-Clogging Finger Springs

Clog-resistant finger springs apply consistent loading and adjustment.

7 Balanced Seal Design

Generates less heat at extreme pressures; the 442C seals from 28" Hg vacuum to 450 psig.

8 Patented Automatic Centering

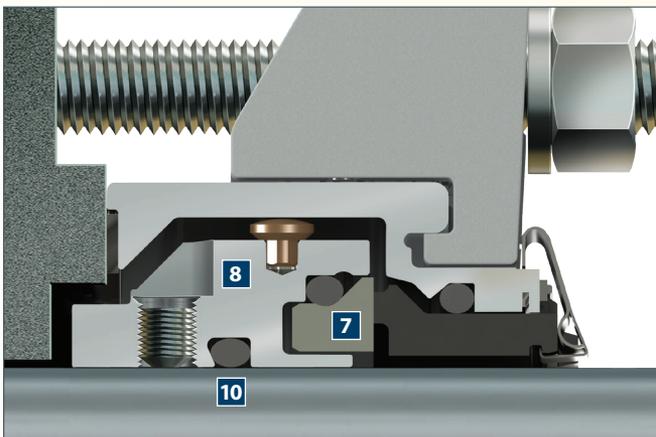
Ensures concentric seal face operation with the use of internal, automatic centering buttons.

9 Compact Gland Design

Fits more of your equipment without the need for modification. The 442C and 442C XL are one of the most compact mechanical seals available.

10 Captive O-Ring Groove

Made easier and more reliable for you. The O-Rings reside in purpose-specific grooves to maximize performance and extend seal life.



Designed for Your Needs

Focusing on maximized equipment productivity and manpower utilization, Chesterton split seals are the answer to the growing needs of the modern pump manufacturer, specifier, and operator around the world.

MADE FOR YOUR EQUIPMENT

Fits Your Equipment Dimensions

The compact gland design fits most equipment without modification or special adaptation due to the design's short axial length.

Fits Your Equipment Bolting Position

The adjustable gland tabs allow for easy seal installation on most equipment without design modifications.

Fits Your Piping Arrangement

Two integral flush ports are located 180° apart offering easy port access in multiple installation orientations.



MADE FOR YOUR APPLICATIONS

Longer Seal Face Life

The hydraulically balanced seal face design generates less heat for longer, more reliable sealing. Reliable seal face operation is seen in the patented automatic centering buttons when aligning the rotating element inside the seal gland, enabling concentric seal face operation.

Accommodates Your Application Demands

The patented O-Ring ramp groove design keeps seal face splits together under pressure and vacuum conditions, giving you reliable pressure-to-vacuum shifts.

Handles Your Process Media

The springs are located out of the sealed fluid to prevent clogging.



MADE FOR YOUR INSTALLERS AND OPERATORS

Install with Confidence

The patented captured fasteners remain in the 442C and 442C XL seals housings during both assembly and disassembly, thus simplifying installation and maneuverability around the equipment.

Automatic Alignment

The advanced, patented, interlocking face technology accurately keys face halves, maintaining face alignment and flatness.

Maintain Face Integrity

Gland assembly installation is performed without spring force acting on the seal faces.

Simple Installation and Repair

O-Rings are held in unique grooves that allow split O-Rings to be held in place without the need for adhesives or special elastomer components.

Five Key Seal Design Features



- ✓ *Balanced Design*
- ✓ *Non-Fretting*
- ✓ *Monolithic Seal Faces*
- ✓ *Stationary Design*
- ✓ *Protected Springs*

Chesterton's Five Key Seal Design Features increase seal performance and longevity in multiple applications across a wide variety of industries.

Reliability Across Industries

Split seals can be installed on small and large pumps across your site. Common applications can be found in the following industries:



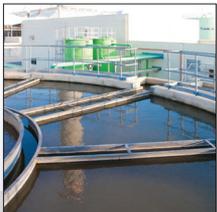
POWER INDUSTRY

- Boiler Feed Pumps
- Condensate Pumps
- Raw Water Pumps
- River Water Intake Pumps
- Ash Handling Pumps
- Lime Slurry Pumps
- FGD Absorber Agitators
- Water Turbines



CHEMICAL PROCESSING

- Cooling Water Pumps
- Dryers
- Ribbon Blenders
- Rotary Filters
- Reactors
- Mixers/Agitators



WATER PROCESSING

- Influent/Effluent Pumps
- Pumping Stations
- Refineries
- Cooling Water Pumps
- Manufacturing
- Utility Water Pumps
- Desalination
- Water Intake Pumps
- Brine Pumps
- Filter Feed Pumps
- Pulp and Paper Industry
- White Water Pumps
- Stock Pumps
- Screw Feeders
- Stock Chest Agitators
- Pulpers
- Fan Pumps
- River Water Intake Pumps
- Boiler Feed Pumps
- Sewage Pumps

Case Study

WASTEWATER PLANT DRAMATICALLY REDUCES SEAL INSTALLATION TIME WITH SPLIT SEALS

Challenge

Background

Wastewater plants often have large equipment to move the fluids needed for normal operation. Repairing this large equipment is very costly and time-consuming. A wastewater treatment plant that Chesterton works with in Ohio is a prime example. They have large end-suction pumps using cartridge seals that need to be replaced every two years or less. It takes the maintenance crew approximately 8 – 10 hours to disassemble the pump, replace the cartridge seal, and reinstall the pump.



12 x 12 x 15 End-Suction Pump.

Solution

Service

When presented with the advantages of the [Chesterton 442C Cartridge Split Seal](#) and the ease of installation and use, the customer decided to replace a cartridge seal on one of the pumps in the plant. A 442C seal 4.50" with RSC/RSC faces and FEPM O-Rings was installed by the plant maintenance crew and took about 1 – 2 hours to complete. The seal has now been running without issues for over 5 months. Some of the prior cartridge seals lasted only 4 – 5 months!



442C Cartridge Split Seal 114 mm (4.50") was installed in less than two hours.

Results

Based on this initial success, the plant is planning to convert all of their cartridge seals over to 442C split seals. There are an estimated 15 pumps that will undergo the transition.

The plant can expect an average yearly savings of approximately \$3,000 for each split seal based on extended reliability and greatly reduced installation time. If all 15 pumps are converted, the plant can expect to save another \$45,000/year.



The plant expects significant savings per year.



Global Solutions, Local Service

Since its founding in 1884, the A.W. Chesterton Company has successfully met the critical needs of its diverse customer base. Today, as always, customers count on Chesterton solutions to increase equipment reliability, optimize energy consumption, and provide local technical support and service wherever they are in the world.

Chesterton's global capabilities include:

- Servicing plants in over 113 countries
- Global manufacturing operations
- More than 500 Service Centers and Sales Offices worldwide
- Over 1200 trained local Service Specialists and Technicians

Visit our website at chesterton.com



Chesterton ISO certificates available on
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Seal Brochure
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