

442C™ CARTRIDGE SPLIT MECHANICAL SEAL

ENHANCED DESIGN FOR SIMPLE INSTALLATION AND GREATER SEALING RELIABILITY



Simple,

Why use Chesterton Split Seals?

- Cartridge design simplifies installation and provides superior sealing reliability
- Enhanced performance capabilities
- Eliminate equipment teardown and the associated downtime
- Easy field repair
- Broadest equipment fit of any split seal
- No packing maintenance or break-in requirements
- Eliminate shaft/sleeve wear
- Reduce or eliminate flush water usage
- Proven technology for reliable operation
- Increase operational performance
- Reduce maintenance and operating costs

Reliable Sealing Solution

442C™ CARTRIDGE SPLIT MECHANICAL SEAL

The Chesterton® 442C Cartridge Split Mechanical Seal is the latest innovation in split seal technology, combining superior seal performance with the ease of installation of a cartridge split seal. Our patented split seal technology addresses the inherent limitations found in conventional cartridge split seal designs, minimizing installation complications and excessive leakage.

The 442C design also offers the greatest installation flexibility with its short axial length and flexible gland positioning. Custom gland design requirements to fit your equipment are minimized/reduced.

Less is More—Cartridge Installation and Greater Reliability

The Chesterton 442C Cartridge Split Seal simplifies seal installation while also addressing sealing reliability at start-up.

With only two seal components, the 442C is easy to install and is engineered to enhance sealing reliability like no other cartridge split seal.



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

Easy Field Repair

The 442C design simplifies split seal repair by using a standard spare parts kit, enabling you to lower your inventory costs to maintain operations. Special tools, spacers, or other requirements are not necessary, simplifying the repair process.

Innovation Drives

The 442C™ Cartridge Split Seal incorporates many new technical advancements that simplify seal installation and also significantly increase seal performance and reliability.



1 Interlocking Faces

Interlocking Face—Patent Pending

Because the seal faces are split, the halves need to align correctly to seal. This has been one of the key problems associated with the installation of split seals and their sealing consistency.

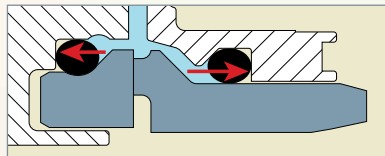
The *Interlocking Face* eliminates this problem by uniquely keying the mating halves so that faces align correctly without having to manually work the face halves. Damage associated with handling and additional cleaning requirements are eliminated, which results in greater sealing reliability.

Self-Aligning Face Design

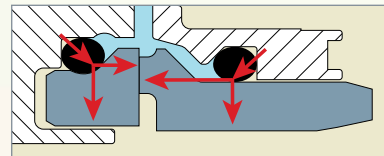
The 442C Cartridge Split Seal can be installed without checking for face alignment or touching the sealing elements—the seal faces align themselves and do not have to be handled or worked. The gland assembly is installed around the rotary without inspecting face alignment. Quicker installations and enhanced reliability are the results!

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.

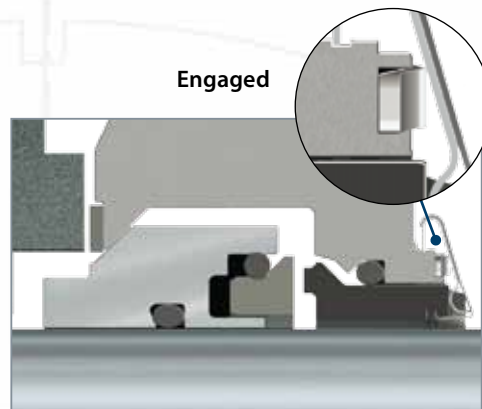


Under vacuum conditions, atmospheric pressure acts on O-Rings, forcing them against the ramped surfaces of the seal faces.

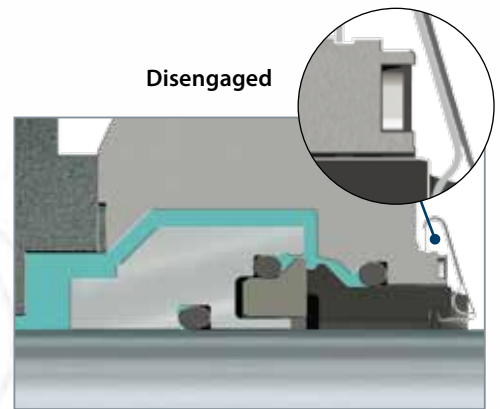
Seal Performance

Spring Lifter

The 442C uses a mechanism which automatically energizes the seal faces when the gland assembly is installed. During installation, the springs are not energized, minimizing potential installation damage which can occur. Split seal reliability is enhanced!



Engaged



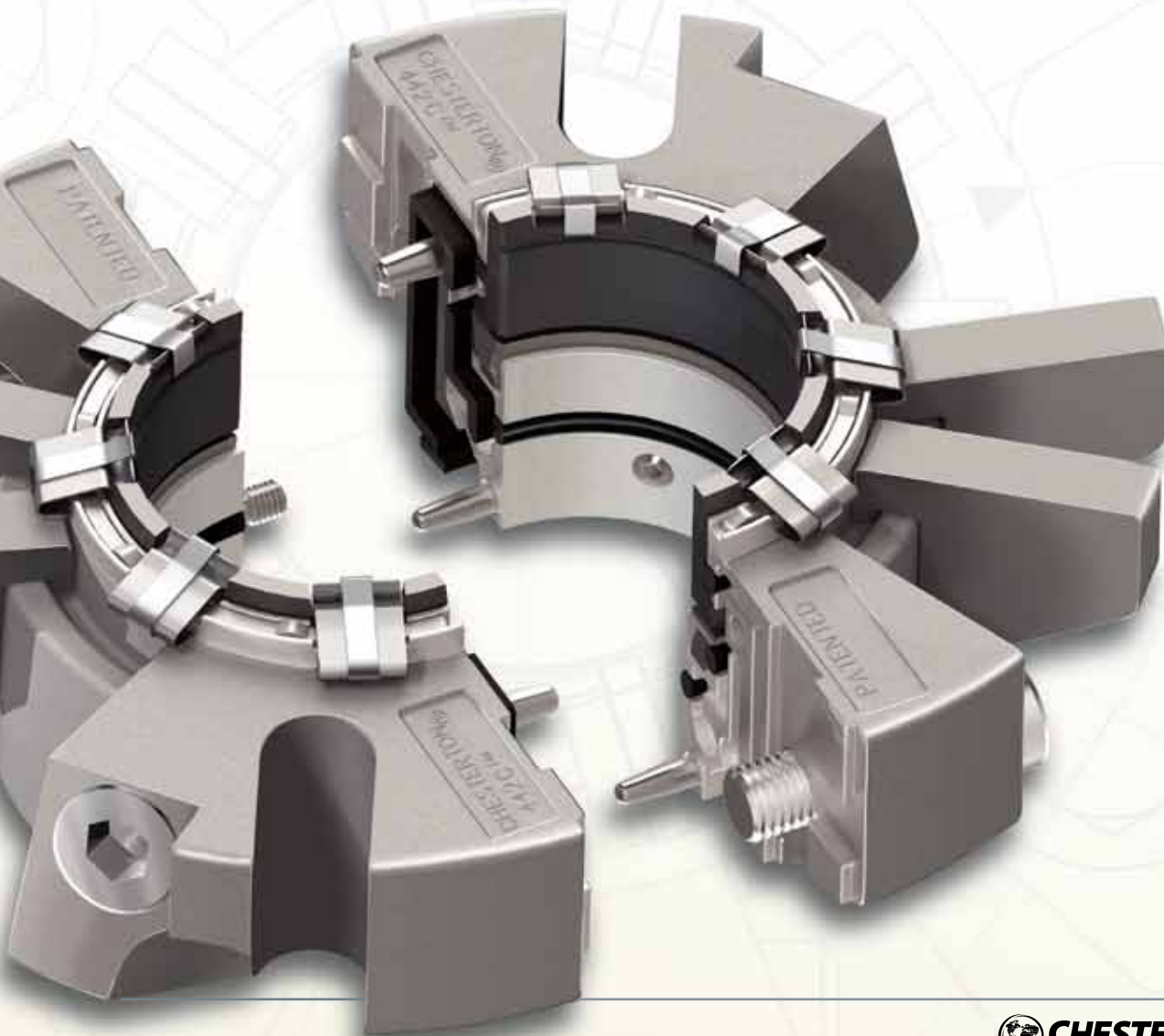
Disengaged

Before Installation

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.

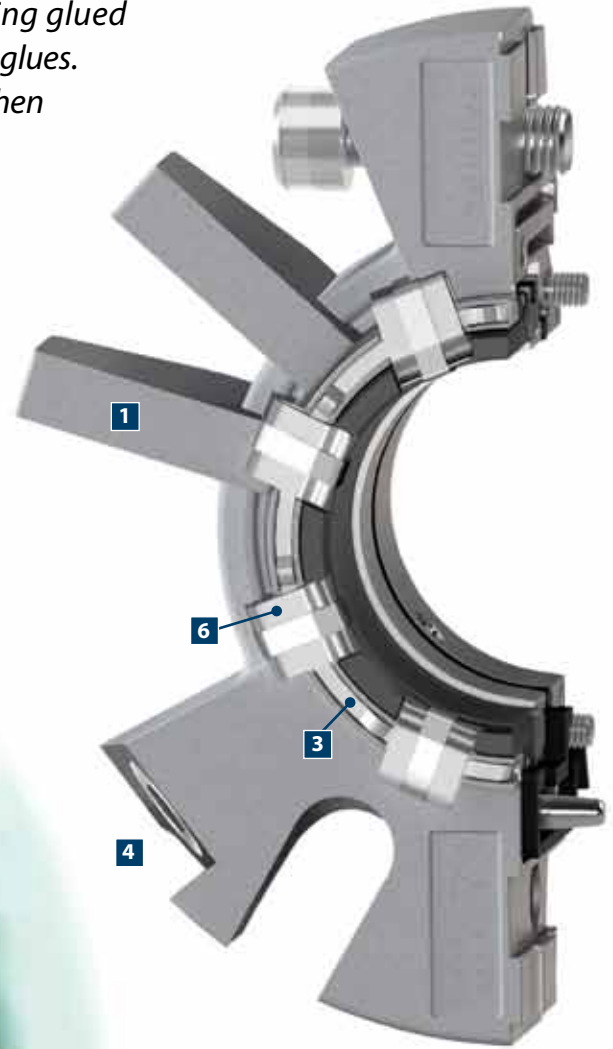


Proven Design, Superior

SIMPLE FIELD REPAIR

The Chesterton 442C™ can be repaired on-site without removing glued elastomers or parts or using special solvent to dissolve these glues. There are no measurements to take or elastomers to cut and then glue back in place as required in other split seal designs.

The 442C Split Seal design simplifies split seal repair by using a standard spare parts kit, enabling you to lower your inventory costs to maintain operations. Special tools, precision spacers, or other custom components are not needed, simplifying the process and increasing seal repair reliability.



Operating Parameters

Sizes	25 mm to 120 mm (1.000" to 4.750")
Pressure*	710 mm (28") Hg to 30 bar g (450 psig)
Temperature	To 120°C (250°F)
Speed, Wet	To 20 m/s (4,000 fpm)

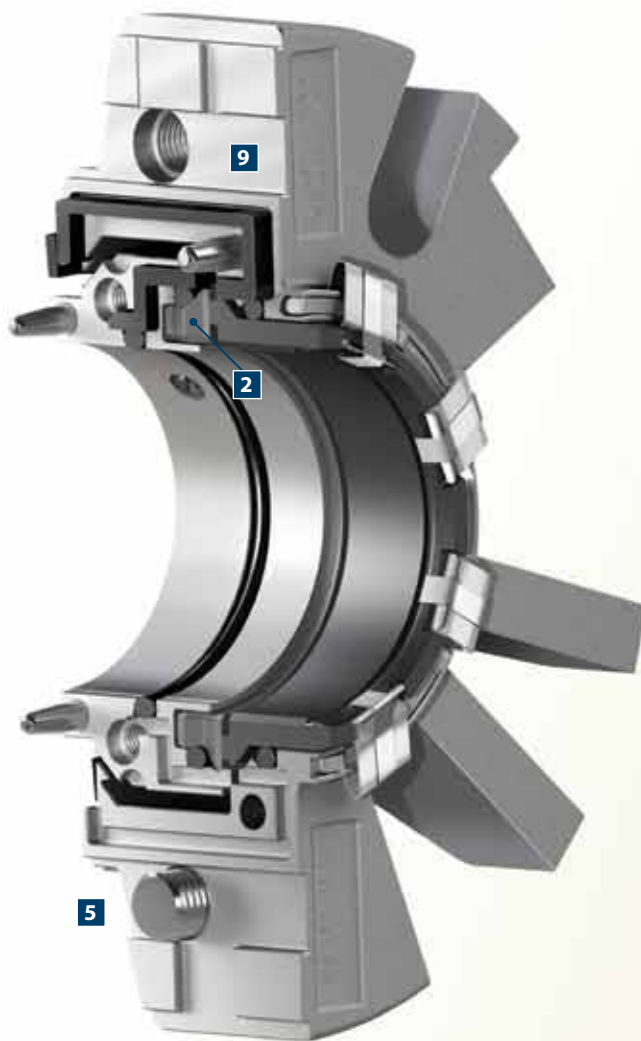
*Seal pressure capabilities are dependent on the fluid sealed, temperature, speed, and seal face combinations.

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

Materials of Construction

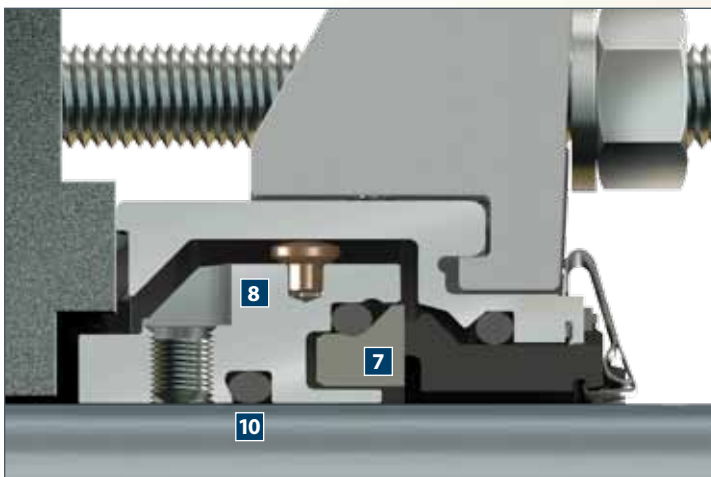
Component	Standard Materials
Rotary Faces	Ceramic and Silicon Carbide
Stationary Faces	Carbon and Silicon Carbide
Elastomers	Fluorocarbon, Ethylene Propylene, Tetrafluoroethylene-Propylene
Spring	Elgiloy®
Metal Parts	316 Stainless Steel (EN 1.4401)

Performance



442C SPLIT SEAL FEATURES AND BENEFITS

- 1 Patented Adjustable Gland**
Gland tabs adjust to fit your equipment bolt position. Easy adjustment avoids “special order” gland designs necessary with other split seals.
- 2 Interlocking Face Alignment—Patent Pending**
Advanced seal face technology accurately keys face halves to ensure seal face alignment and flatness.
- 3 Spring Lifter—Patent Pending**
Permits gland assembly installation without spring force acting on the seal faces—eliminates face damage that can occur in conventional cartridge split seal designs.
- 4 Integral Flush Ports**
Located 180° apart and, when combined with the adjustable gland, provides maximum flexibility when venting or flushing.
- 5 Patented Captured Fasteners**
Fasteners remain in the 442C seal housings during both assembly and disassembly, making installation easier.
- 6 Non-Clogging Finger Springs**
Springs are located out of the sealed fluid to prevent clogging, maintaining seal axial movement.
- 7 Balanced Seal Design**
Hydraulically balanced, computer modeled seal face design generates less heat for more reliable sealing.
- 8 Patented Automatic Centering**
Centering buttons align the rotating element inside the seal gland, enabling concentric seal face operation.
- 9 Compact Gland Design**
Fits more equipment without modification or special adaptation due to the design’s short axial length.
- 10 Captive O-Ring Groove**
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. Simplifies seal repair and installation.





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 100 countries
- Global manufacturing operations
- More than 500 Service Centers and Sales Offices worldwide
- Over 1200 trained local Service Specialists and Technicians

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442C Seal Brochure
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