AESSEAL®
ENVIRONMENTAL TECHNOLOGY

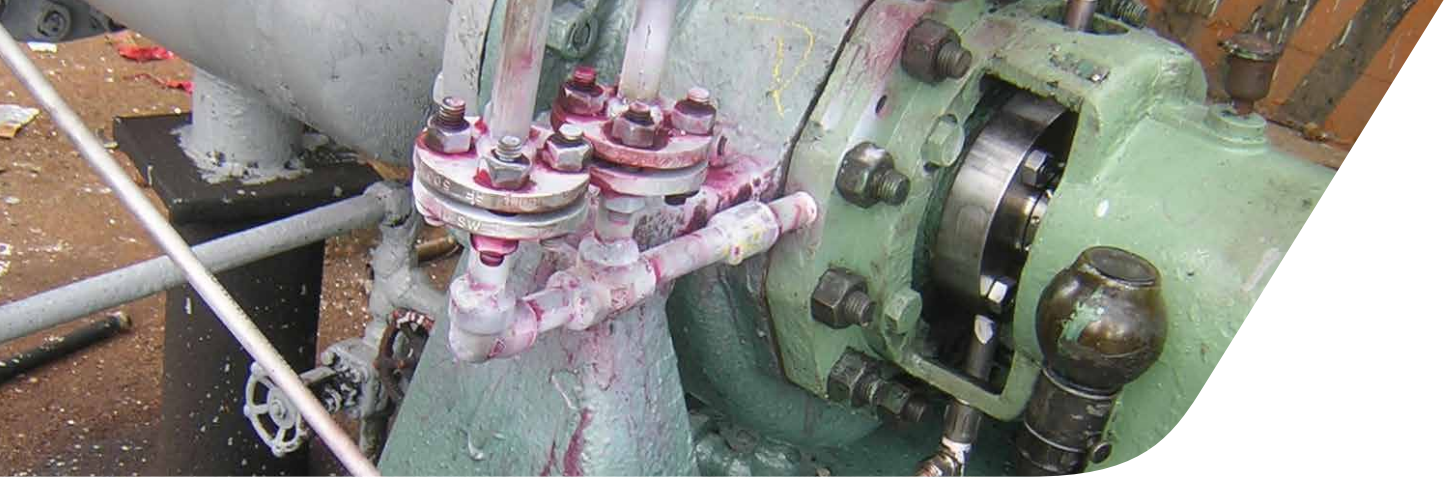
CAPI-TXS-F™

Single Cartridge Seal For Legacy API 610 pumps

Conversion from traditional component seal to API type cartridge seal

- Patent pending axially retaining restriction bush
- Field proven reliable solution
- Cartridge seal design
- No modification to pumps usually required
- Simple retrofit upgrade
- API 682 qualified seal faces and features
- Factory assembly pressure tested

www.aesseal.com



Traditional Approach - Legacy Edition API 610 Pumps

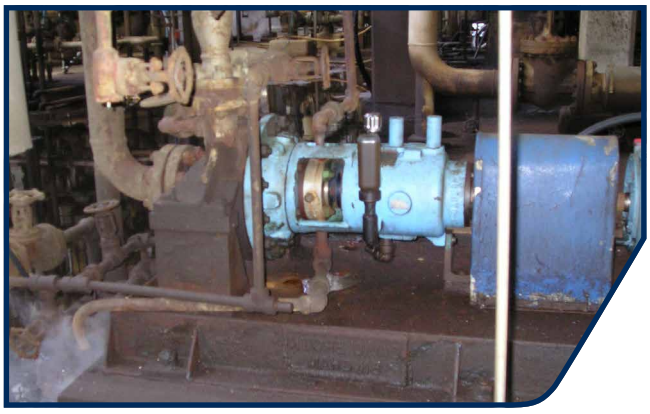
Many Hydrocarbon processing and tank storage complex's were built over 4 decades ago and generally fitted with traditional single component seals that don't meet today's API standards.

API 682 was first published in 1994 and intended for both new and retrofit equipment in hazardous, flammable, and/or toxic services. The Standard specified 'all seals regardless of type or arrangement shall be of cartridge designs without hook sleeves. However many pumps, even today, are still fitted with historic legacy component seals.

Assembly and Installation

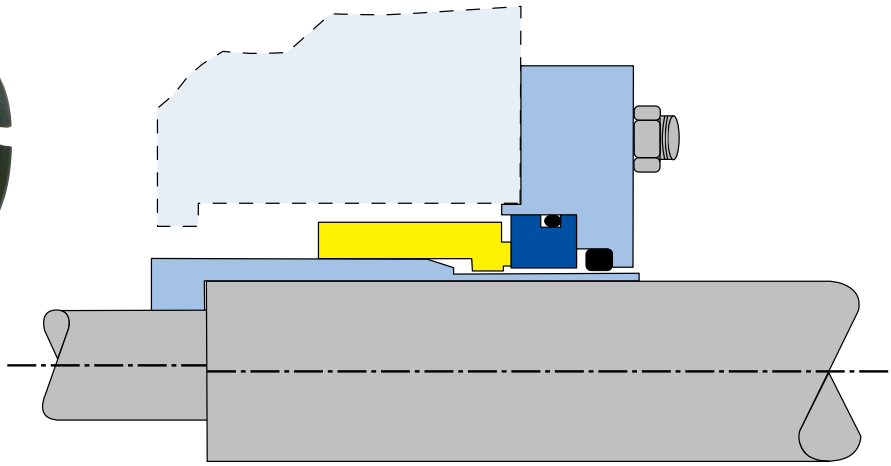
Component seals are assembled into pumps as individual parts during the pump build. The process requires care and attention not to damage brittle parts (such as seal faces) in the assembly process. Many of the seals require a setting length to be determined. With traditional seals there is no means to pressure test the seal until the pump is completely reassembled.

Traditional multiple spring rotary seal



Legacy API pump with single seal installed

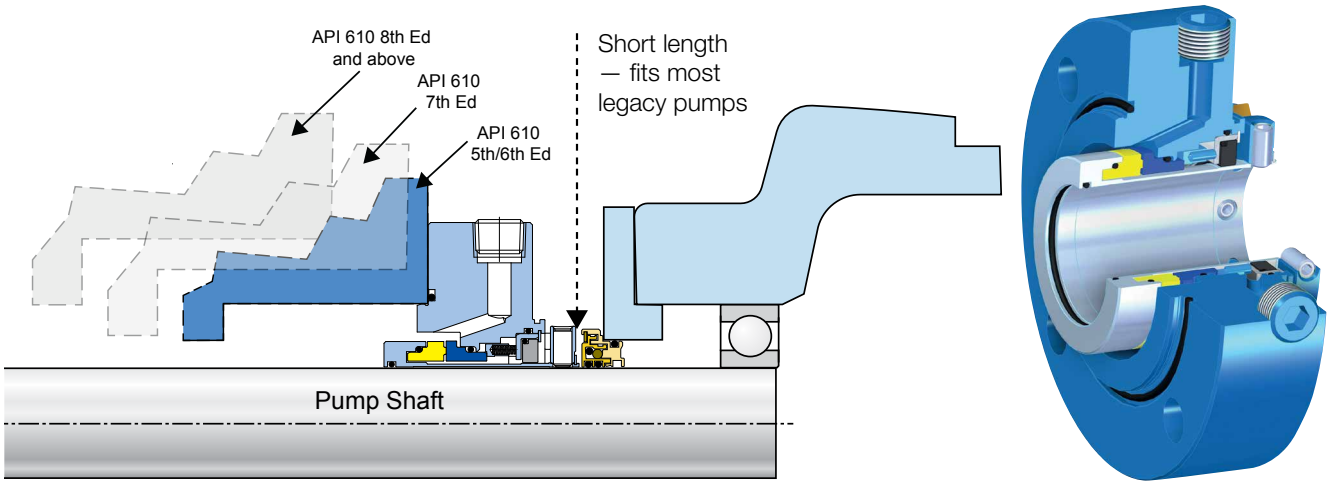
Traditional single spring rotary seal



Traditional balanced component seal mounted on hooked sleeve

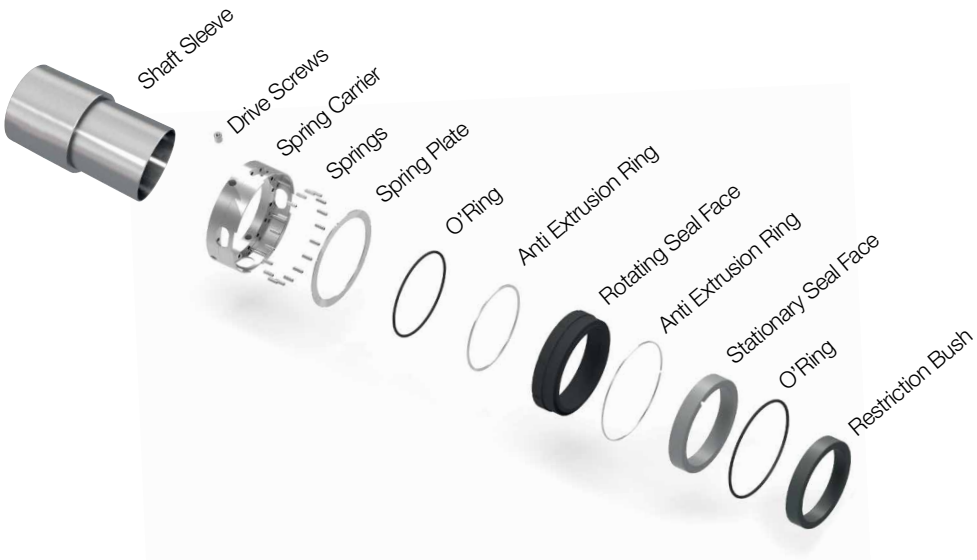
CAPI-TXS-F™

CAPI-TXS-F™ incorporates API 682 qualified seal faces and components and is designed to fit old edition API 610 pumps with smaller seal chambers.



Seal Inventory Reduction Programs

The traditional component seals used are made up from multiple parts - major components & consumables such as O'rings. Seals are typically stocked as individual components in different part bins. It is not uncommon for different material options inventory. With the use of modern material options and a cartridge assembly, inventories can be significantly streamlined thus reducing costs of inventory management.



Best Practice Inventory
1 part – cartridge seal:

AESSEAL® CAPI-TXS-F™

CAPI-TXS-F™ cartridge seals are pre-assembled, pre-set and pressure tested as a one-piece seal unit. The cartridge is locked to the shaft at the end of the pump assembly and is unaffected by the tolerance stack-up of pump components or by the mechanic's skill. Setting / transportation clips retain all seal components within the cartridge, protecting them during installation.

> "Surveys carried out in the 1990s by the CMA[1] and the STLE[2], concluded that over an installed population cartridge seals out performed component seals."

Best-of Class user companies use cartridge seals almost exclusively. The concepts of favourable economics and highest achievable reliability support this choice.

1) Chemical Manufacturing Association of America. 2) Society of Tribology and Lubrication Engineers

Design Features

Improved performance and reliability.

Elimination of Shaft / Sleeve Fretting

The AESSEAL® CAPI-TXS-F™ has stationary mounted springs. API 682 4th Edition-states: stationary spring seals may be chosen because they give the benefit that if the gland plate and shaft lose their perpendicular alignment due to pump case distortion the faces remain correctly aligned.

Pump case misalignment can occur due to pipe loads, thermal distortion, pressure distortion, etc; with a stationary spring seal, perpendicularity of the seal faces is controlled by the seal sleeve and shaft fit, it is tolerant of pump casing distortion. Whereas with traditional rotary seals, the perpendicularity is controlled by the pump casing, any distortion may therefore lead to reduced reliability and shaft sleeve fretting.

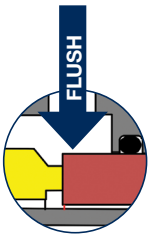
Non-Clogging Design

Unlike traditional seal designs AESSEAL® Pusher seal springs are not immersed in the process fluid. This improves seal life by preventing potential for hang up, in contaminated, abrasive, congealing, sticky, polymerizing, or waxy fluids.

Seal Flush Improvements

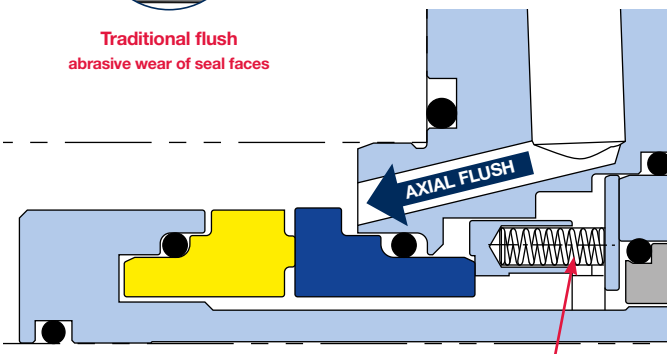
Erosion: traditional seals often use a single port flush injection. With a recirculation flush (such as Plan 11) any abrasive particles in the process stream are accelerated through the flush port and impinge on the seal faces, often causing damage in the form of erosion.

The AESSEAL® CAPI-TXS-F™ utilizes an axial port to prevent seal face damage – A multi-port option flush is also available for light hydrocarbon services.



Traditional flush
abrasive wear of seal faces

Option - multi-port



AESSEAL® axial flush
and stationary springs remote from pump fluid

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AESSEAL plc is certified to:

ISO 9001, ISO 14001, ISO/IEC 20000, ISO/IEC 27001, ISO/TS 29001, ISO 37001, ISO 45001 & ISO 50001

Use double mechanical seals with hazardous products.

Always take safety precautions:

WARNING

- **Guard your equipment**
- **Wear protective clothing**

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