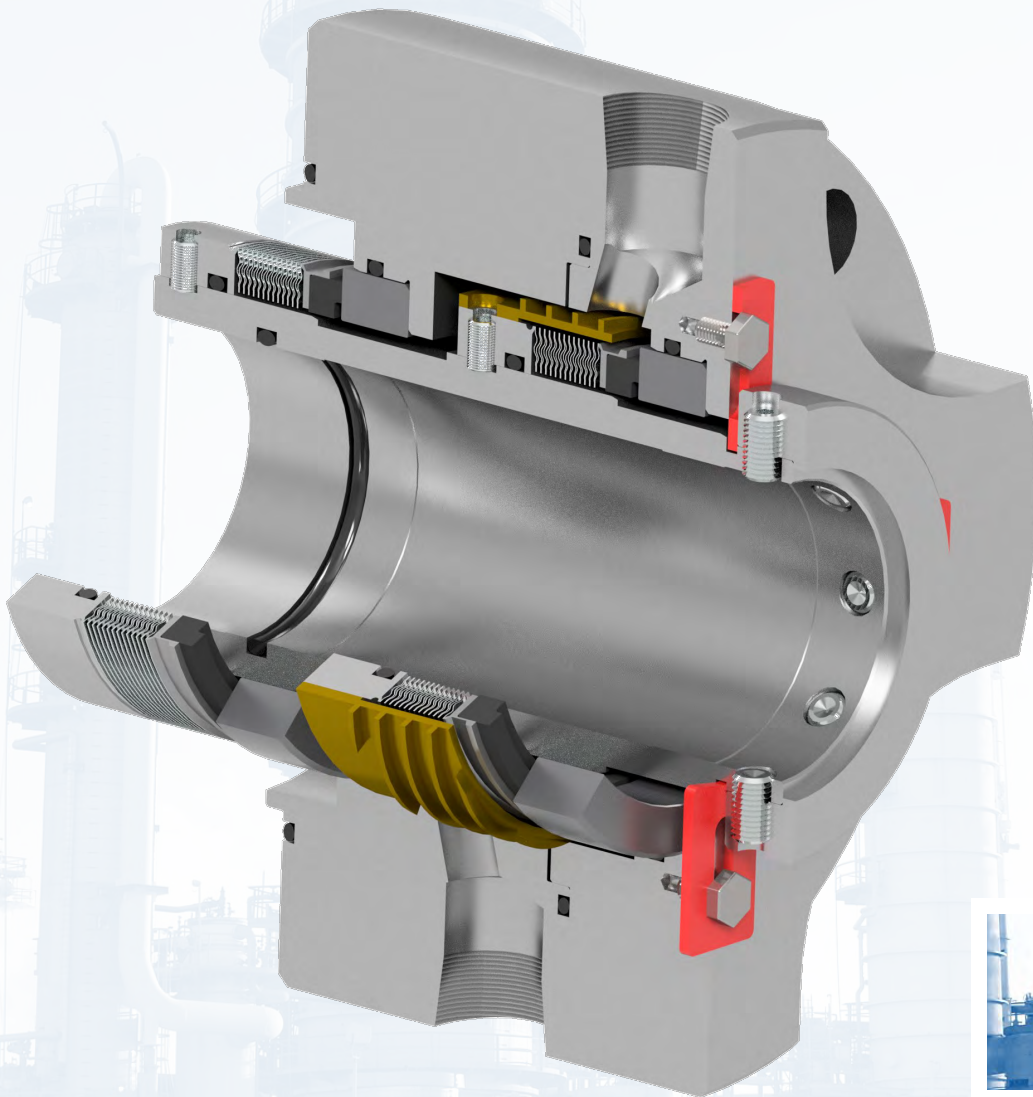




## 682B Series Seals

*API 682 Type B metal bellows seals*



**CREATING SEALING SOLUTIONS THROUGH INNOVATIVE ENGINEERING**  
**MADE IN THE USA**

### DESCRIPTION

The 682B Series of cartridge seals represent seals produced by PPC meeting the criteria of the Type B design under API Standard 682. These designs are balanced, internally mounted cartridge non-pusher seals with a flexible metal bellows element and static O-ring secondary sealing members. Designed as Category 2 seals per API 682, these designs are fully compatible with API 610 pumps.

Per API 682, the standard seal design features a rotating flexible element (metal bellows), with the option of a stationary bellows design. Under the API Standard, the seals are applicable to process temperatures up to 350 °F (176 °C) as an option to Type A seals for applications where a metal bellows provides increased performance over a dynamic O-ring.

682B Series seals may be provided in all three API Arrangements (single, tandem, double), and may be configured to suit individual applications. Various flush designs and forms of leakage containment are available, including:

- Distributed flush designs including multi-port rings
- Solid and segmented floating throttle bushings

### 682B SERIES SEALS & ARRANGEMENTS

#### ULTRASEAL 150 CARTRIDGE SEAL

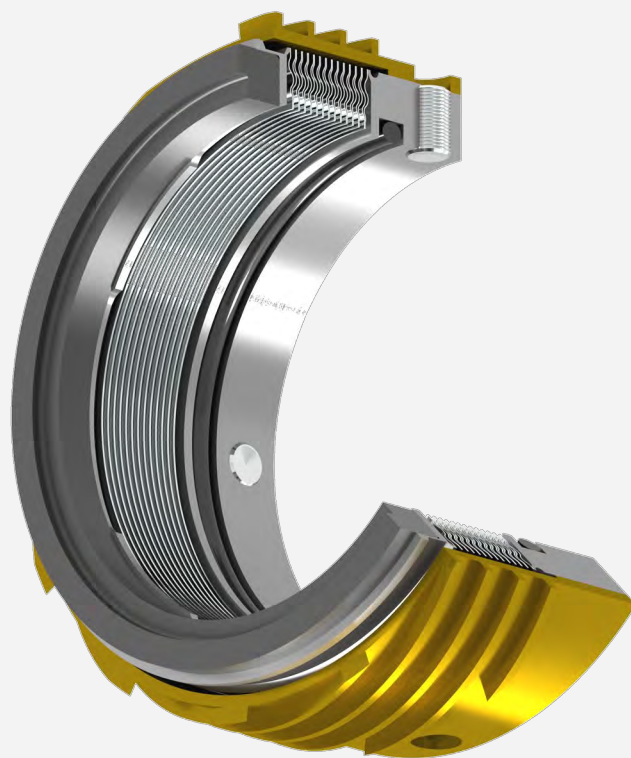
The Ultraseal 150 cartridge seal is PPC's standard rotary bellows design and has proven success where pusher seals are neither recommended nor suitable. These applications typically involve sealing fluids where byproducts from a temperature change or air exposure would compromise a dynamic O-ring design (crystallization, coking, etc.). The Ultraseal 150 is available in the following API 682 configurations:

- Arrangement 1 (single), Arrangement 2 (tandem), Arrangement 3 (double)
- Contacting wet (CW) seal

#### ULTRASEAL 159 CARTRIDGE SEAL

The Ultraseal 159 seal indicates a special design or feature over PPC's standard Ultraseal 150 rotary bellows design. Common applications involving a 159 designation include the addition of a pumping ring, adjusted hydraulic or mechanical loading, and shortened working heights. The Ultraseal 159 is available in the following API 682 configurations:

- Arrangement 1 (single), Arrangement 2 (tandem), Arrangement 3 (double)
- Contacting wet (CW) seal, Containment seal (CS)

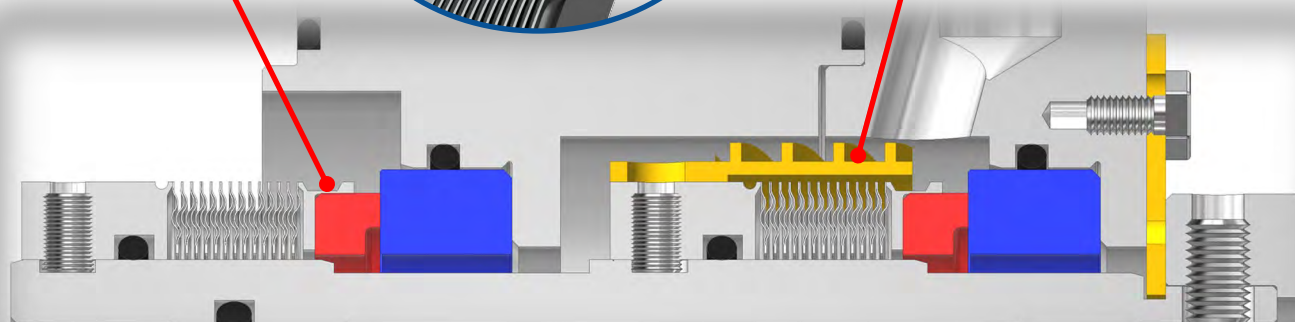
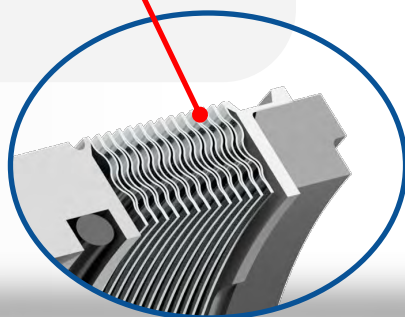


**Ultraseal 159 Rotary Unit**  
(pumping ring in gold)

## ULTRASEAL 150 SEAL FEATURES

## 682B Series Seals

- Metal bellows eliminates hang-up concerns from dynamic O-ring.
- Double-ripple nesting bellows design provides even face loading with excellent pressure handling capabilities.
- Engineered insert holder design provides uniform pressure on insert to maintain face flatness.
- Static O-ring eliminates fretting damage to sleeve.
- Rotating bellows is self-cleaning due to centrifugal forces. There are no springs to clog or hang up.
- When applicable, pumping ring is added to the seal rotary unit to provide forced circulation of barrier/buffer fluid.



***Ultraseal 150/159 Tandem Cartridge Seal  
Arrangement 2, Contacting Wet (2CW-CW) seal***

## ULTRASEAL 150 OPERATING CONDITIONS

- Seal Chamber Pressure:** Up to 300 psig (20 bar g)  
*Dependent on size, speed, and sealed fluid properties*
- Process Temperature:** -40 to 500 °F (-40 to 260 °C)  
*Dependent on elastomer material, contact PPC for applications above 500 °F*
- Surface Speed:** Up to 4500 fpm (23 m/s)
- Size Availability:** Shaft sizes 0.750" to 3.750" for cartridge designs  
*Contact PPC for specific applications outside these parameters*





## MATERIALS OF CONSTRUCTION

## 682B Series Seals

**Metallurgy:** 316 SS Standard  
*Other materials available, including Duplex SS, Alloy C-276 & Titanium*

<b>Seal Face Options:</b>	<b>Standard</b> Carbon (Metal-filled) Reaction Bonded Silicon Carbide	<b>Optional</b> Carbon (Resin-filled) Tungsten Carbide, Nickel Bound Sintered Silicon Carbide Graphite Loaded Sint. Silicon Carbide Diamond-treated Sint. Silicon Carbide
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**Elastomers:** Fluoroelastomer (FKM), AFLAS®, Perfluoroelastomer (Kalrez®/ Chemraz®)  
*Other materials available upon request*

**Metal Bellows:** Alloy C-276 (Standard per API 682), AM-350 SS

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Kalrez® is a registered trademark of E. I. du Pont de Nemours and Company  
Chemraz® is a registered trademark of Greene, Tweed & Company

## APPLICATIONS

- Acid Transfer
- Amines
- Caustic & Chlor-Alkali
- Waste Processing
- Distillation
- Heavy Oil
- Hydrocracking
- Solvents



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