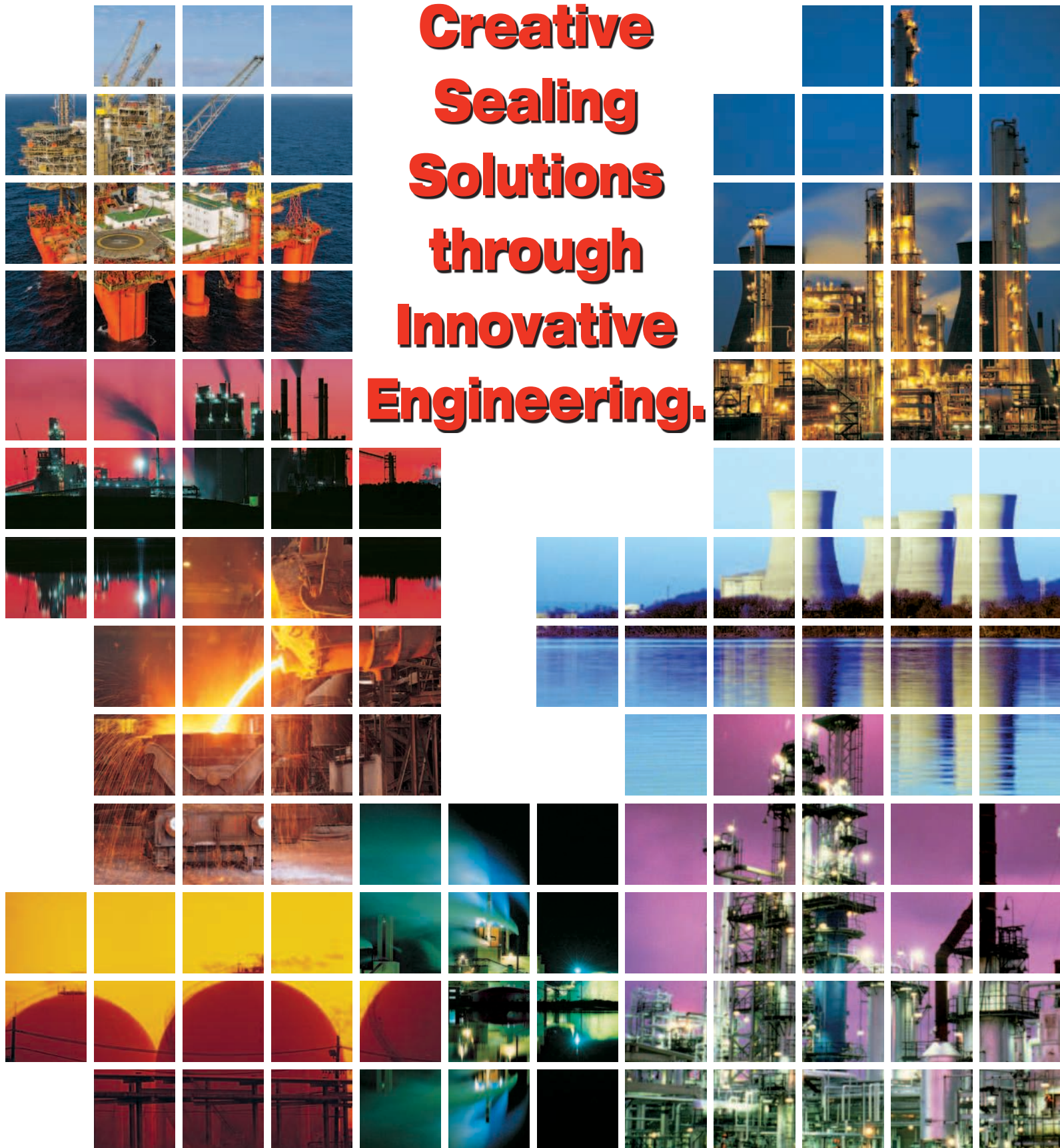
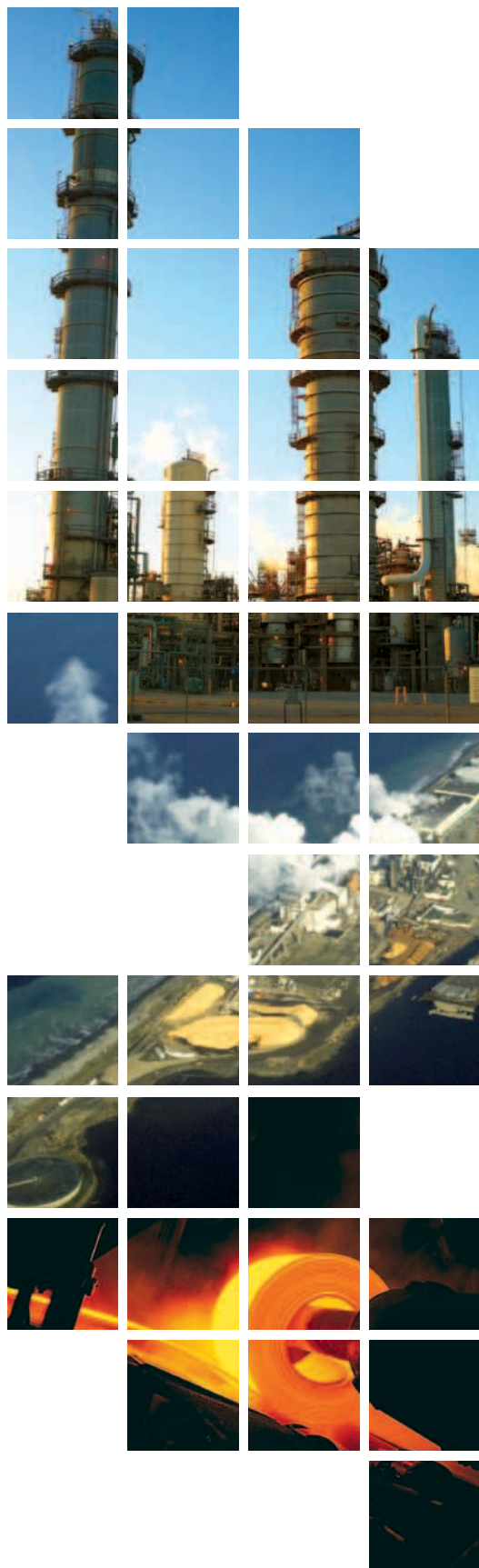


**Creative  
Sealing  
Solutions  
through  
Innovative  
Engineering.**





Welcome to PPC Mechanical Seals, one of the World's oldest and largest seal manufacturers, a company built by meeting and exceeding our Customer's needs.

PPC's long history began in 1958 in Baton Rouge, Louisiana, where production continues to this day. In 1958 seals were relatively simple in design; however in today's marketplace you have a huge range of seals and sealing devices for all types of rotating equipment. To cover all industries and all types of equipment globally, the list of seals and styles is very long. For example, since 1958, we have seen the development of split seals (singles and doubles), noncontacting and contacting gas seals, high pressure seals, edge welded metal bellows seals, high temperature seals, reactor seals, API, ANSI, DIN cartridge seals, etc. Over the years PPC has pursued the latest technologies to better meet our Customer's needs. In fact, PPC produced the world's first and only split double mechanical seal in direct response to a Customer's request for a double seal that did not involve tearing down the equipment to remove and install the seal.

PPC started its days as a local seal manufacturer serving the Gulf Coast of the United States, however, today we are a Global competitor with distribution across the globe. PPC has developed an excellent reputation with our customers on every level through our superior service, exceptional quality, short turnaround times, competitive pricing, excellent expertise, and a willingness to design custom engineered seals.

When discussing quality and expertise, PPC has no equal. We are an Employee Owned Company (ESOP), the employees are the stockholders. As stockholders in PPC, we know that Quality is what sets PPC apart from the competition and increases the company's stock value.

The stockholders (employees) at PPC want you to know that you are not dealing with a multi-billion dollar conglomerate; you are dealing with people who care, people who know seals and understand that to continue our growth we have to outperform and out deliver the competition. You are not just a number in our book, you're the reason we exist. We invite you to visit PPC and see the difference.





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## KEY:



**Red Seal Faces Rotate In the Seals**



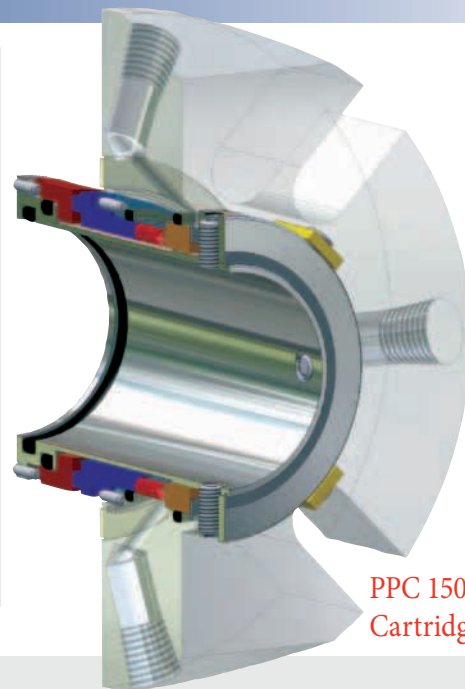
**Blue Seal Faces are Stationary in the Seals**

### 1500 SINGLE CARTRIDGE SEALS

Stationary designed single cartridge seals for multiple industries. The 1500 series is a versatile line of seals, from the economic 1500E to the engineered 1500F. The 1500 series utilizes the latest in sealing technology, stationary springs compensating for pump stuffing box misalignment, monolithic faces to reduce face warpage and maintain face flatness across a extreme range of temperature and pressures. The anti-rotation pins are set into the most robust section of the stationary face providing superior life under extreme conditions. This design works well in light abrasive and slurry applications.

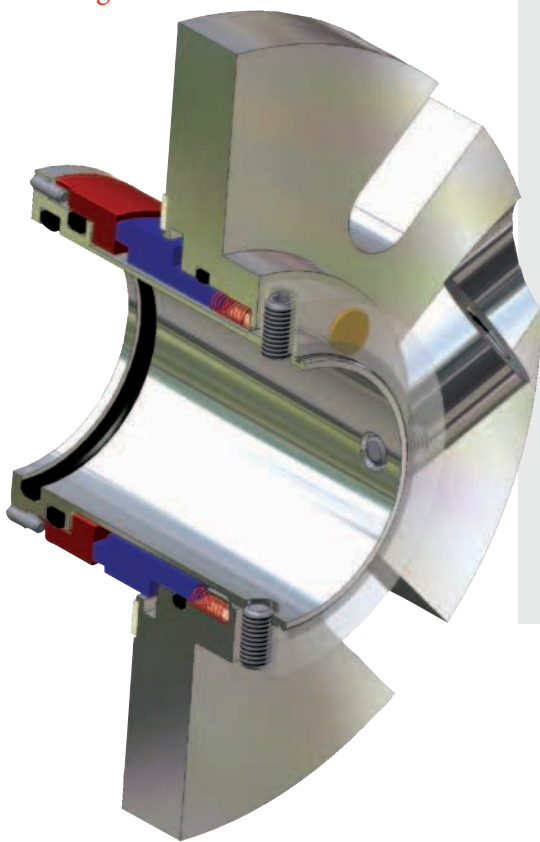
#### TECHNICAL DATA:

Temperatures: 0°F to 400°F, please consult with PPC for applications exceeding 400°F.  
Pressures: Up to 300 PSIG, depending on size and speed.  
Speed: Up to 3600 RPM



PPC 1500 Single Cartridge Seal

#### PPC 1500E Single Cartridge Seal



### 1500E SEALS

Stationary designed single cartridge seals for multiple industries. The “E” version of the 1500 Series is designed to be economical to the customer. It incorporates the same stationary design with tangential flush ports, anti-rotation pins in the most robust section of the stator, and a universal gland. A unique feature of the 1500E is the fact that the setting clips/spacers have been replaced with “setting buttons”. The use of setting buttons eliminate the potential for mistakes when installing the seals. No more struggling trying to remove the setting spacers!

The “EHD” version of the 1500 Series is designed with the heavy duty shroud over the rotary seal face. In highly viscous services and heavy slurries, the shroud provides extra protection to the seal faces.

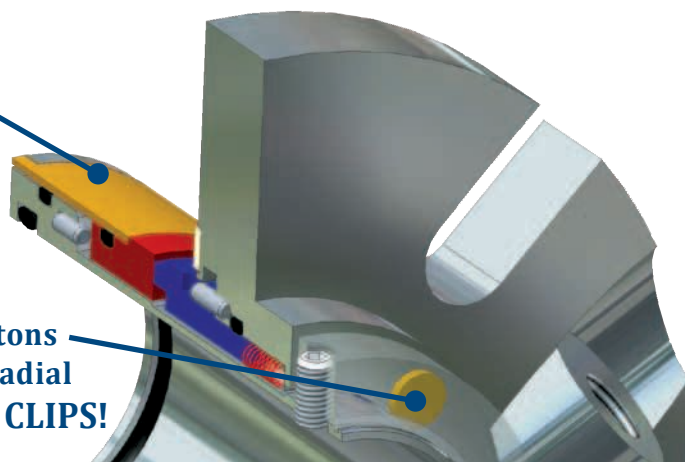
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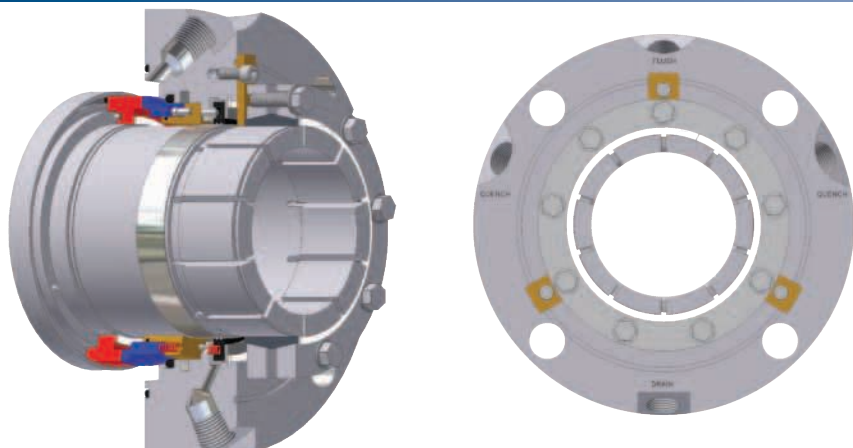
Temperatures: 0°F to 400°F, please consult with PPC for applications exceeding 400°F.  
Pressures: Up to 300 PSIG, depending on size and speed.  
Speed: Up to 3600 RPM

#### PPC 1500EHD Heavy Duty Single Cartridge Seal

**HeavyDuty Protective Shroud**

**Centering Buttons for axial and radial alignment. NO CLIPS!**



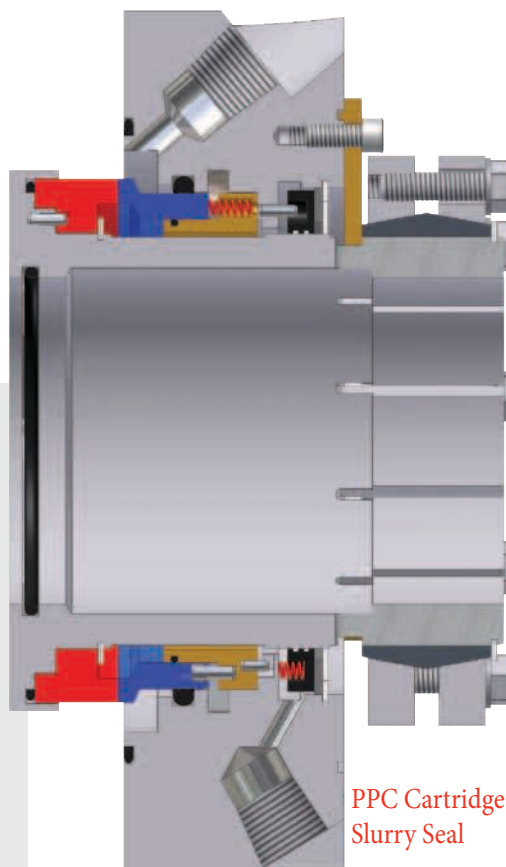


### SLURRY SEALS

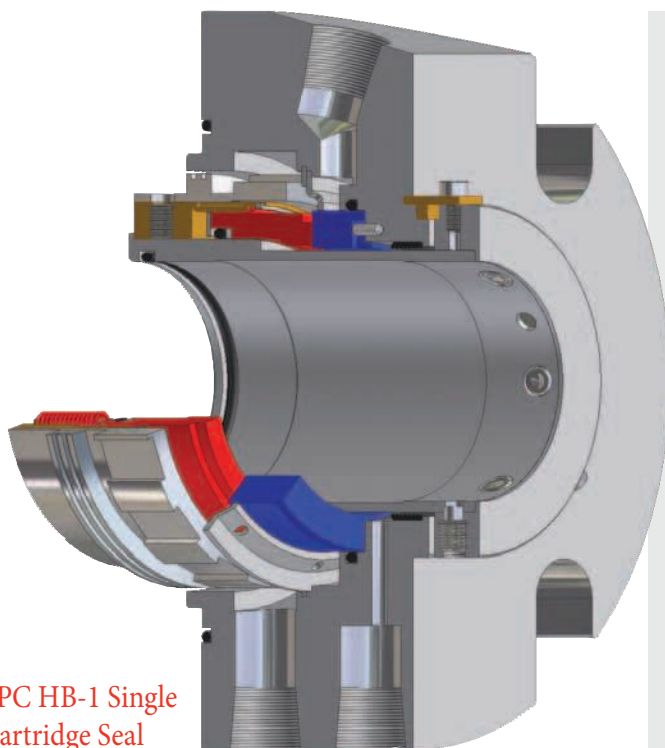
PPC has manufactured seals for slurry applications for over 50+ years. Slurries can be found in almost all industries with numerous properties. Most people associate slurries with mining, however, we find slurries in API, petrochemicals, waste water treatment, all facets of everyday life. PPC has manufactured seals for the following applications and industries: tailings, mining, waste treatment, sludge, ash, coal, FGD, lime, potash, mash, coatings, clay, starch, paper stock, river water, liquor (black, white, green), evaporators, bauxite/alumina, salt, minerals, corn processing, crude, food grade, sugar, sugar refining, Uranium, Copper, tar sands, gypsum, calcium and de-watering. Diamond faces are available for extreme applications.

#### TECHNICAL DATA:

Temperatures: Up to 400°F please consult with PPC for applications exceeding 400°F.  
 Pressures: Up to 300 PSIG  
 Speed: Up to 3000 FPM  
 Duty: 60% Solids by weight



PPC Cartridge  
Slurry Seal



PPC HB-1 Single  
Cartridge Seal

### BOILER FEED SEALS

PPC's experience with boiler feed applications is extensive. Boiler feed applications have been misunderstood for years. The optimum configuration for a boiler feed application is a high pressure seal with a restriction bushing, multi-port injection, and an API Plan 23 heat exchanger. This allows for optimum cooling and maximum life on the mechanical seal. Multi Pass Cooling (API Plan 23) allows for maximum cooling in the mechanical seal stuffing box. The second choice would be an API Plan 21 with a heat exchanger coming from the discharge side of the pump to cool and raise the pressure in the stuffing box to increase the vapor point.

PPC can offer a plan to upgrade your existing seals with Lube Groove or Hydro Pad technologies at a reduced cost resulting in improved MTBF.

#### TECHNICAL DATA:

Temperatures: 0°F to 400°F, please consult with PPC for applications exceeding 400°F.  
 Pressures: Up to 1000 PSIG, depending on size and speed.  
 Speed: Up to 3600 RPM



### PPC P3-F DUAL CARTRIDGE SEAL

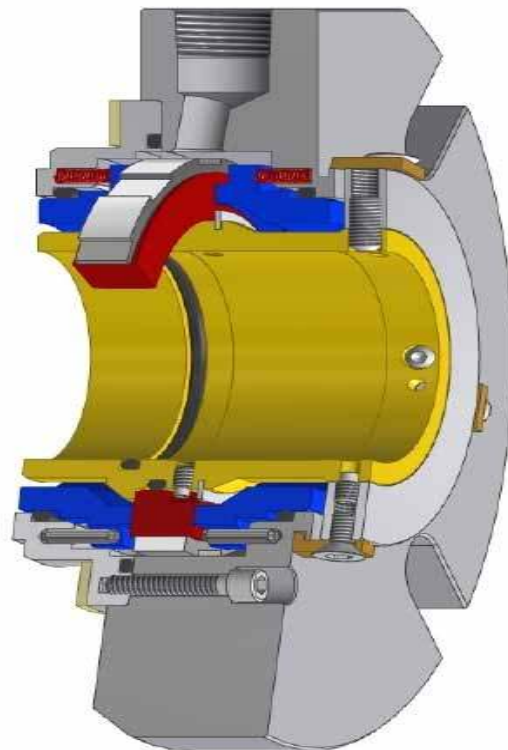
The P3-F dual seal utilizing the latest in sealing technology, stationary springs compensating for pump stuffing box misalignment, monolithic rotary faces to reduce face warpage and maintain face flatness across an extreme range of temperatures and pressures. It has an integral pumping ring as a standard feature, providing positive fluid flow to the seal reservoir. In mechanical sealing it is essential to keep seals cool, clean and lubricated; the pumping ring ensures this will take place in all applications. Thus, obtaining superior life under extreme conditions.

#### TECHNICAL DATA:

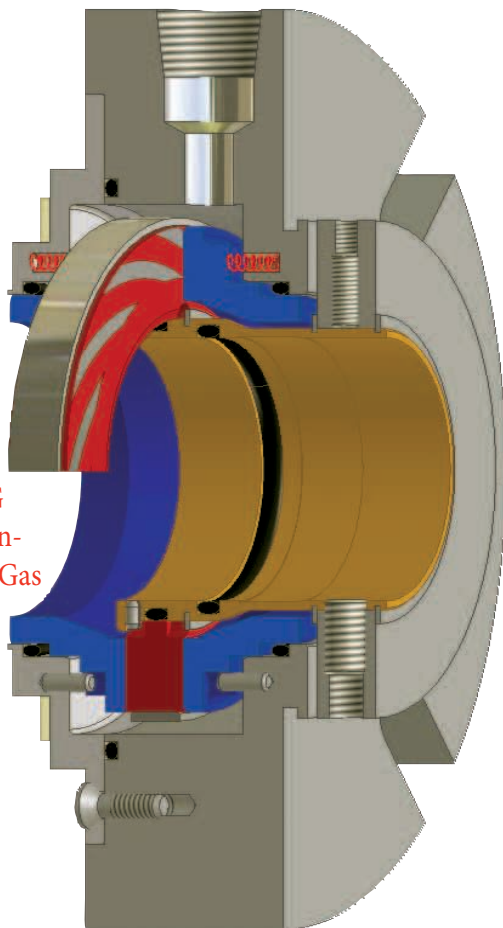
Temperatures: 0°F to 400°F, please consult with PPC for applications exceeding 400°F.

Pressures: Up to 300 PSIG, depending on size and speed.

Speed: Up to 3600 RPM



PPC P3-F Dual Cartridge Seal



PPC 7000G  
Double Non-  
contacting Gas  
Seal

### ENGINEERED DUAL SEALS:

Dual (Double and Tandem) liquid or dry running contacting seals. These dual seals are either a double or tandem seal utilizing a buffer/ barrier fluid in between the seal faces. The PPC 7000 seal is a dual contacting dry running seal for Zero Leakage.

#### Noncontacting Seals:

7000G: A non-contacting (full lift-off) gas seal utilizing Uni-Directional grooves.

7000GB: A non-contacting (full lift-off) gas seal utilizing Bi-Directional grooves.

The 7000G/GB grooves generate a high pressure gas barrier to fully separate the seal's faces, creating an effective seal and eliminating friction.

#### 7000G & 7000GB TECHNICAL DATA\*:

Temperatures: 0°F to 400°F, please consult with PPC for applications exceeding 400°F.

Pressures: Up to 300 PSIG, depending on size and speed.

Speed: Up to 5400 FPM

\*For applications exceeding these parameters contact PPC for the appropriate solution.

### 1200S SPLIT SINGLE SEAL

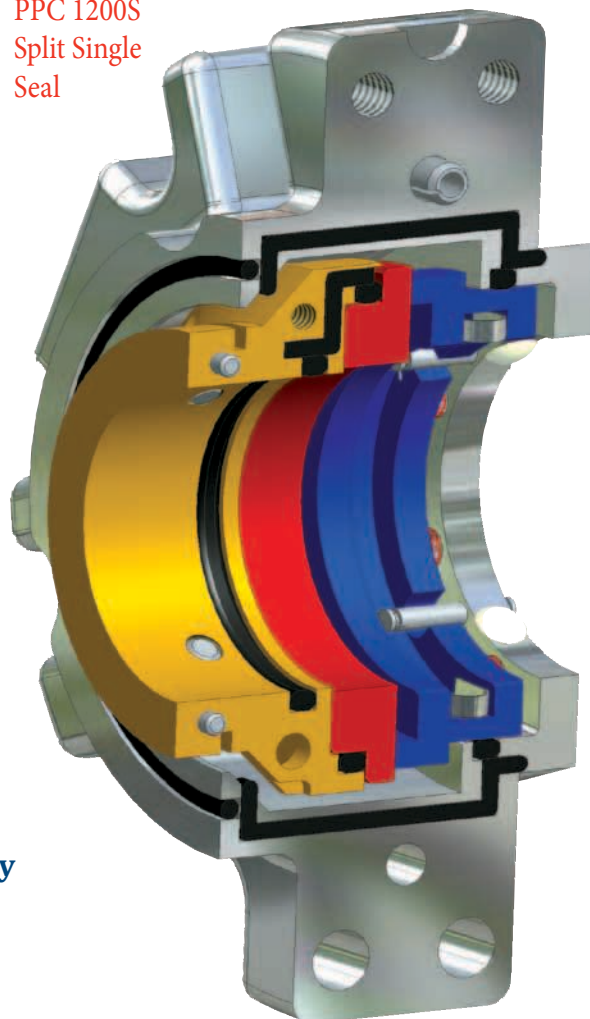
PPC's stationary single split mechanical seal. The seal was designed to have the fewest pieces possible and maintain the highest mechanical integrity. The rotary face is four pieces with the splits installed perpendicular from each other to eliminate face warpage that can occur when the two metal holders come together. PPC split seal also eliminates the sleeve (used in a two piece design) to allow for much greater radial movement, a must on most big equipment. Two primary advantages of this design are not having to Disassemble Equipment and Field Repairability.

Split seals are very popular in industries such as pulp and paper, corn/grain processing, steel, mining, waste treatment, water, alumina, etc.

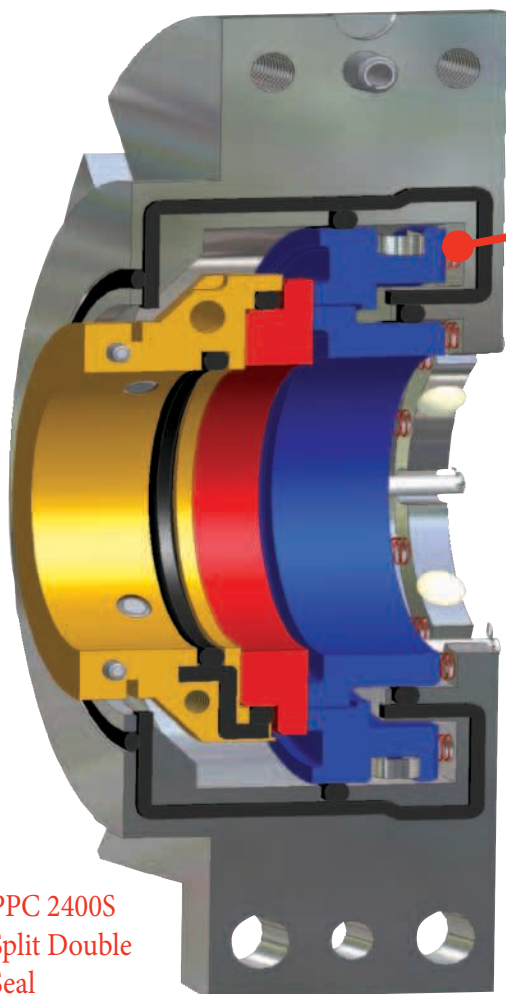
#### TECHNICAL DATA:

Sizes:	1-½" – 7"	For sizes over 7" contact PPC.
Temperatures:	0°F – 300°F please consult with PPC for applications exceeding 300°F.	
Operating Conditions:	1-½" – 2 5/8"	200 PSIG, 3600 RPM
	2-¾" – 4 3/4"	150 PSIG, 1750 RPM
	4-7/8" – 7"	100 PSIG, 875 RPM

PPC 1200S  
Split Single  
Seal



Two Stationary  
Faces in the  
Gland.



PPC 2400S  
Split Double  
Seal

### 2400S SPLIT DOUBLE SEAL™

The world's first and only stationary split double mechanical seal. PPC has taken split seal technology to an entirely new level. The split double seal was developed for those customers that require a double seal and don't want to pull the pump every time to change a double cartridge. Used in industries such as pulp and paper, corn/grain processing, steel, mining, waste treatment, alumina, etc. PPC's proven success with the single split has been duplicated in the split double. Both seals only have 6 components to assemble. Assembly is one of the fastest in the industry. The split double can fit ANSI pumps down to 1-¾" in shaft diameter. This seal utilizes a stacked face setup, concentrically mounted. It is a stationary seal with the springs mounted in the gland to be utilized on an API 54 system.

#### TECHNICAL DATA:

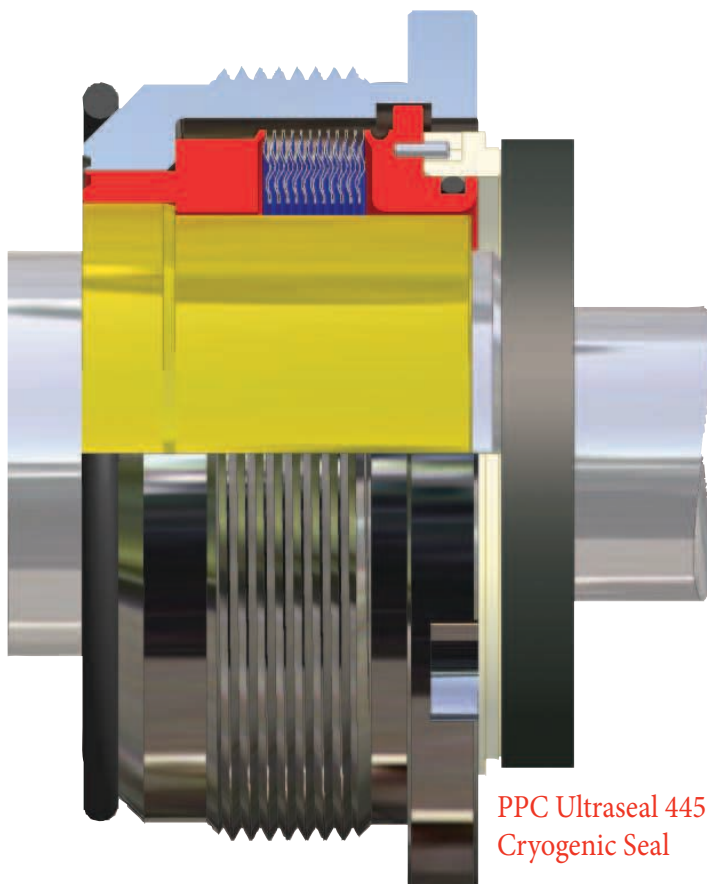
Temperature:	0°F to 300°F
Pressures:	Up to 150 PSIG, depending on size and speed.
Speed:	Up to 3600 RPM, depending on size.

## CRYOGENIC SEALS

PPC's new line of cryogenic metal bellows seals are revolutionary due to a combination of upgrades and new technology with PPCF (a custom blended polymer material). The combination of the proprietary polymers and PPC's surface treatment of the Tungsten Carbide allows the Ultraseal 400 series seals to outperform competitive mechanical seals in both wet and gaseous conditions. Furthermore, the upgrade to the Tungsten Carbide improves the pressure velocity rating (PV) of the seal, allowing it to run much cooler than the competition. The maximizing of the PV, the spring load on the bellows, the new PPCF face, and the Tungsten Carbide with the unique surface treatment all combine for the Maximum Mechanical Seal Life. Note: Seal materials are tested and approved for oxygen service (O<sub>2</sub>).

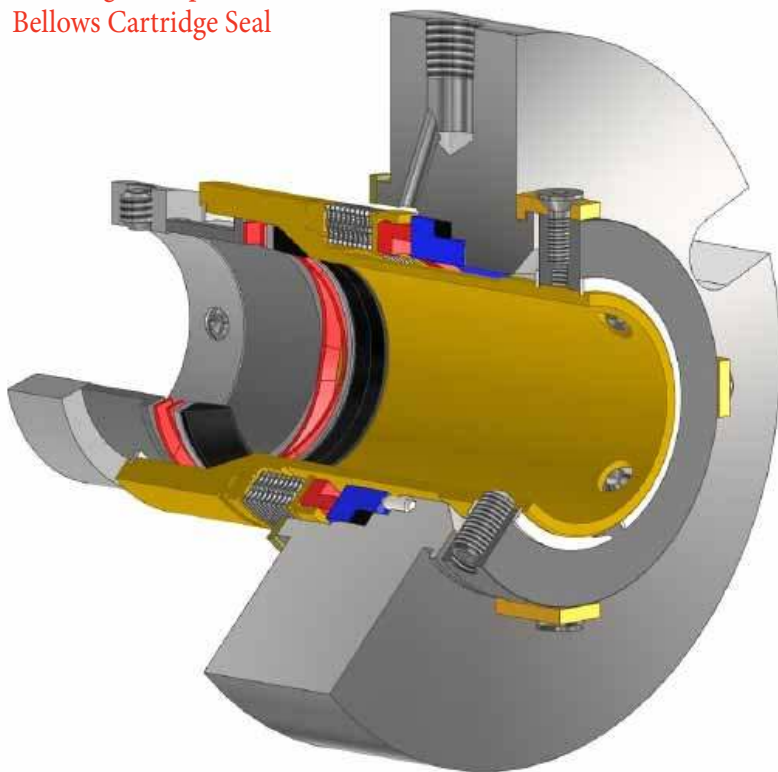
### TECHNICAL DATA:

Temperatures: Down to -320°F  
Pressures: 300 PSIG  
Speed: Up to 10,000 RPM



PPC Ultraseal 445  
Cryogenic Seal

PPC Ultraseal  
1700 High Temperature Metal  
Bellows Cartridge Seal



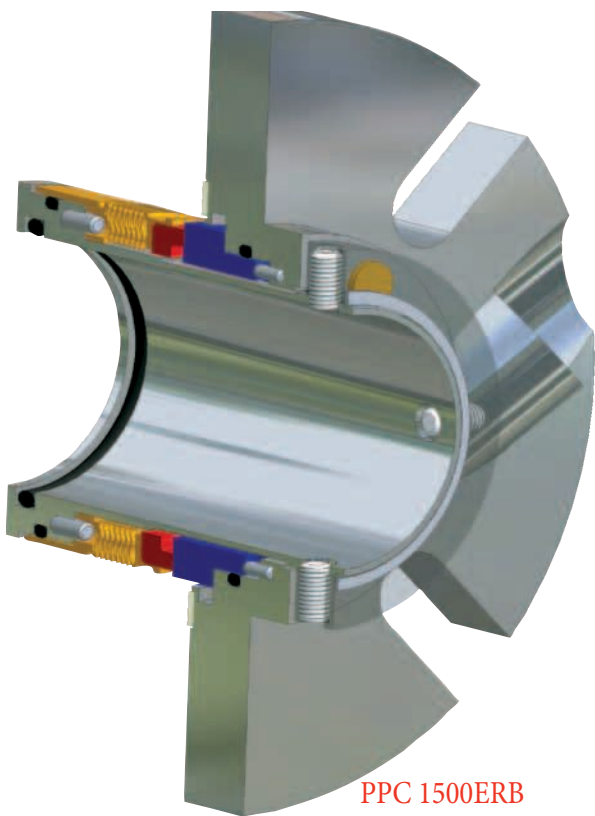
## ULTRASEAL 1700 HIGH TEMP METAL BELLOWS SEAL

The Ultraseal 1700 Series High Temperature Metal Bellows is a cartridge seal engineered specifically for Viking Pumps. This metal bellows seal is designed for applications from 300°F to 900°F. The welded metal bellows acts as the dynamic spring and the dynamic seal, utilizing graphite secondary seals to eliminate the elastomers. Furthermore, the metal bellows is inherently balanced allowing for cooler running faces. Other options: Steam Jacketed Gland (built in thermal channel), flush, quench and drain, and segmented bushings. The seal utilizes all graphite secondary seals, the bellows is AM350, and the face options are metal filled carbon vs Silicon Carbide or Silicon Carbide vs Silicon Carbide.

### TECHNICAL DATA:

Temperatures: -100°F to 900°F,  
Pressures: 300 PSIG, depending on size and  
speed.  
Speed: Up to 3600 RPM





PPC 1500ERB  
Single Metal Bellows  
Cartridge Seal

## ULTRASEAL 151/1500ERB

The Ultraseal 151 is a welded metal bellows single cartridge seal for multiple industries. The welded metal bellows gives you the advantage of eliminating dynamic o-rings, it acts as both the spring and the dynamic seal.

The “ERB” version of the 1500 Series is designed to be an economical solution. It incorporates the metal bellows with tangential flush ports, and a universal gland. A unique feature of the 1500ERB is the fact that the setting clips have been replaced with “setting buttons”. The use of setting buttons eliminate the potential for mistakes when installing the seals.

### TECHNICAL DATA:

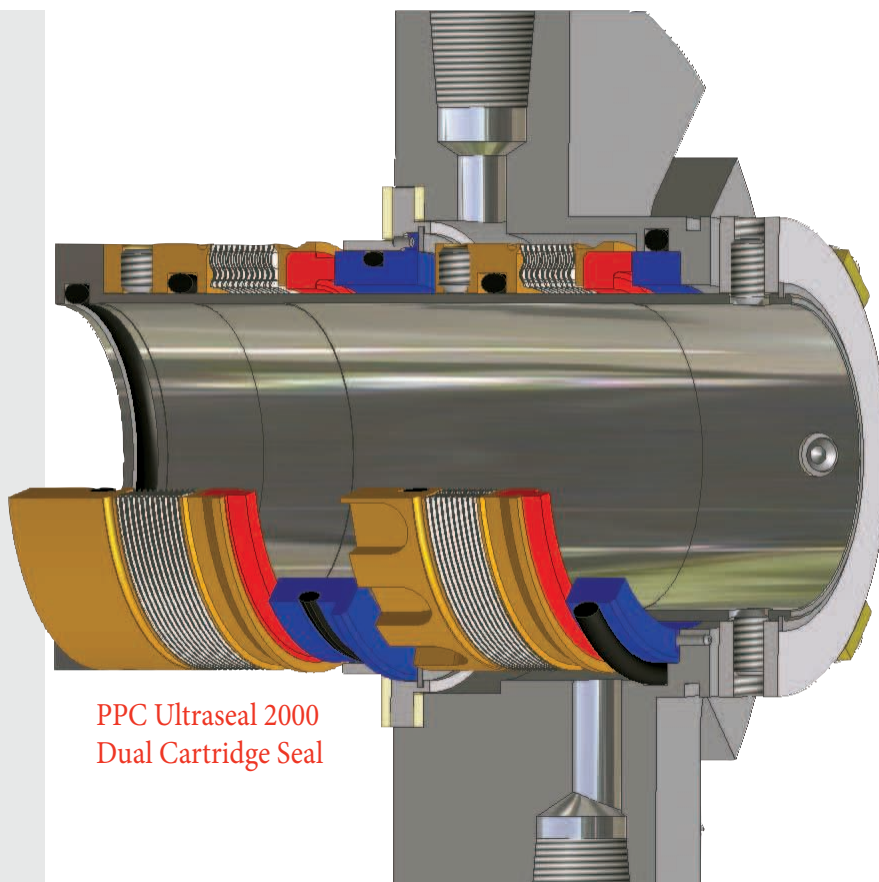
Temperatures: -40°F to 400°F, please consult with PPC for applications exceeding 400°F.  
Pressures: 300 PSIG, depending on size and speed.  
Speed: Up to 3600 RPM

## ULTRASEAL 2000

A dual cartridge metal bellows mechanical seal. This dual (double/tandem) seal is exceptional with its OD pressurized outboard seal faces and an integral pumping ring as standard. The OD pressurization allows for higher internal pressures and the pumping ring delivers the proper flow to circulate the barrier/buffer fluids promoting optimum cooling and lubrication.

### TECHNICAL DATA:

Temperatures: 0°F to 400°F, please consult with PPC for applications exceeding 400°F.  
Pressures: Double mode: 50 PSI differential on inboard seal.  
Tandem mode: 300 PSI.  
Speed: Up to 3600 RPM



PPC Ultraseal 2000  
Dual Cartridge Seal

## REACTOR/MIXER/AGITATOR/ AUTOCLAVE SEALS

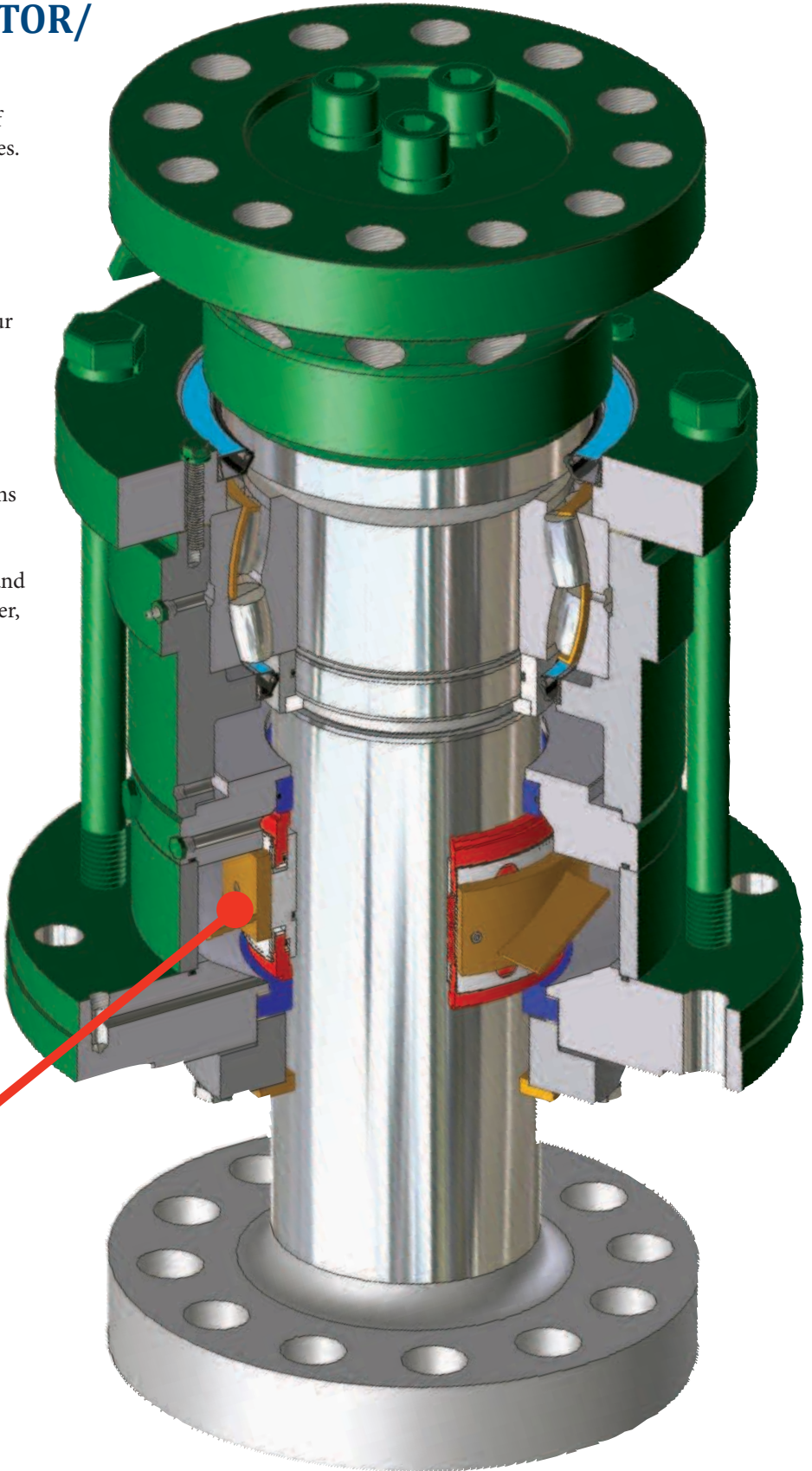
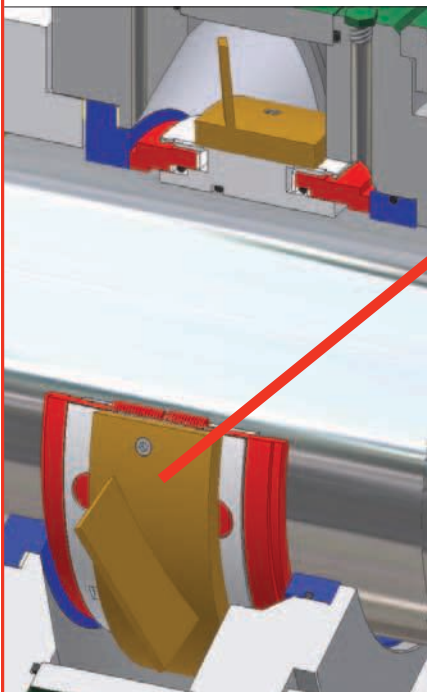
PPC manufactures and repairs a complete line of seals for reactors, mixers, agitators, and autoclaves. They include single seals, double/tandem seals, dry running seals, pharmaceutical seals, seals with bearings internally, large diameters, special metallurgies, etc.

PPC specializes in the design and upgrade of your seals. PPC can upgrade your seal to a double balanced design to further increase the seals performance (normally in the same housing).

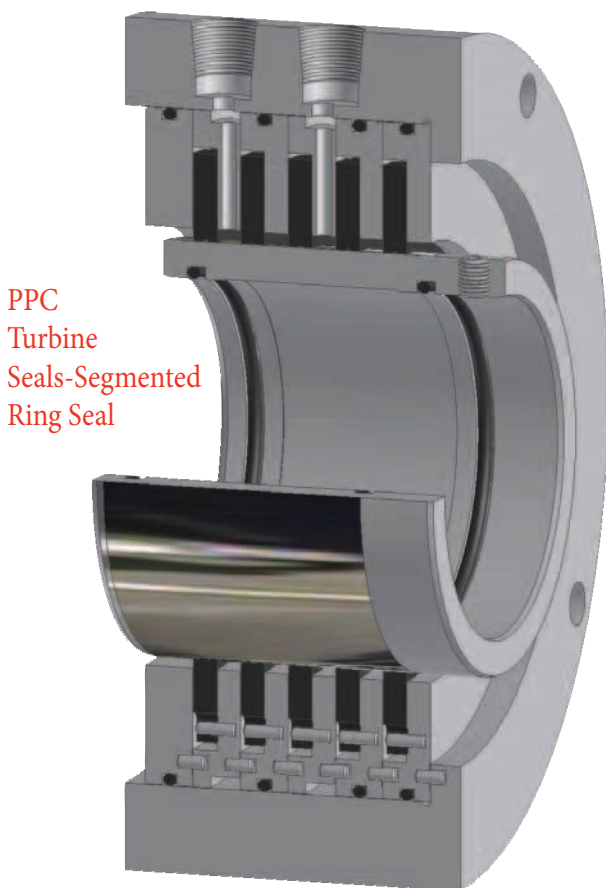
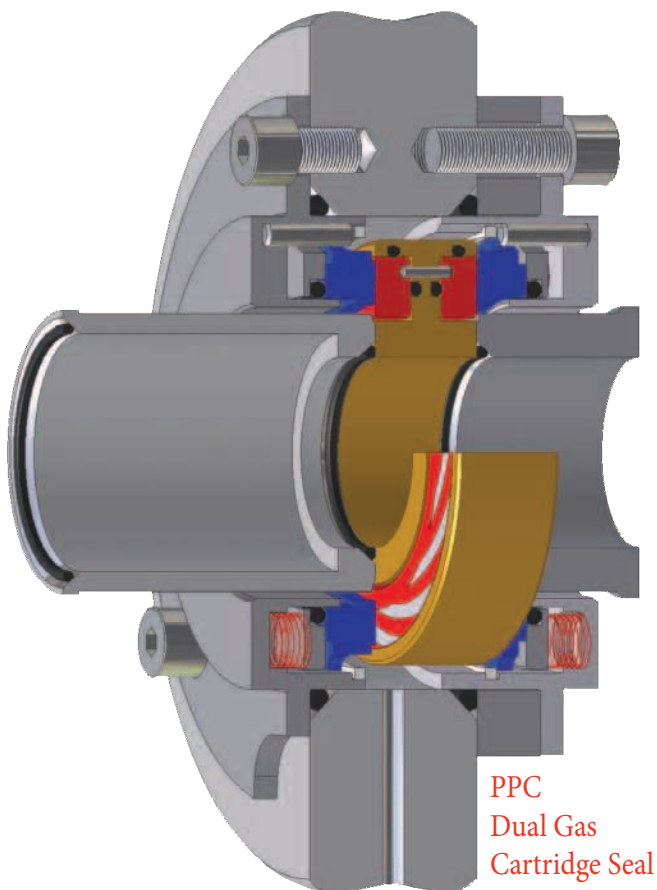
We are also able to upgrade with pumping rings, bearings, cooling jackets, dry running conversions of both contacting and noncontacting varieties.

These seals are usually found on SPX (Lightnin and Plenty) Mixers, Chemineer, Philadelphia, Pfaudler, Ekato, DeDetriech, Jensen, Mixco, and many others.

PPC has added a Pumping Ring (In gold) to the seal to improve and maximize cooling and lubrication.



PPC HB-1 Double Cartridge Mixer Seal



Since 1958 PPC has engineered seal solutions for just about every conceivable piece of rotating equipment. PPC takes great pride in delivering solutions where others have failed or struggled. We combine the latest in computer and virtual technologies in our design process, including but not limited to Finite Element Analysis (FEA), Pressure Velocity software, Thermal Generation (prediction) software, and software for designing gas seal groove profiles.

A sample of the seals and equipment PPC has Engineered seals for:

- Reactor/Mixer: All Major Manufacturers
- Autoclaves
- Turbines
- Compressors
- Axial Flow Pumps
- High runout and high axial movement
- Engineered Split Double Seals
- Fans
- High pressure applications
- High shaft surface speeds
- Noncontacting Gas Seals
- Contacting Gas Seals
- Dry Running Secondary Seals
- Segmented Carbon Bushing Seals
- Positive Displacement Pumps
- Screw Conveyors
- Pipeline Seals
- High Temperature
- Welded Metal Bellows
- Sundyne Seals
- Marine Seals
- Split Case Pumps
- Barrel Pumps
- Boiler Feed Pumps
- Low specific gravity applications
- Mining Pumps
- Steel Mills (Descale Pumps)
- Cryogenic applications



## PIPELINE (API 682) MECHANICAL SEALS

PPC has manufactured seals for all the major pipelines since our inception in 1958. Our products, service and technology are second to none. We utilize the latest technologies including Diamond Faces and Gas Seals to solve the most difficult applications. With our extensive background we are able to service and upgrade all of the styles and makes of pipeline seals:

- Multi-spring single and double seals.
- Single spring seals with a U-cup dynamic seal.
- Gas seals both contacting and noncontacting.
- Tandems with contacting and noncontacting outboards.

PPC also supplies the support systems for your sealing solutions.

Over the years we have utilized the best available technology for the pipeline industry. PPC utilizes an array of designs and styles in sealing the myriad of applications in this industry. Our experience gives us a unique advantage over the competition that we are able to service and upgrade many of the industry's current designs. Ask us how we can improve your seal program from your current supplier.

We have seals for all types of rotating equipment:

- |                           |                     |
|---------------------------|---------------------|
| • API                     | • ANSI              |
| • Overhung: OH 1-5        | • ISO               |
| • Between Bearing: BB 1-5 | • Verticals: VS 1-7 |

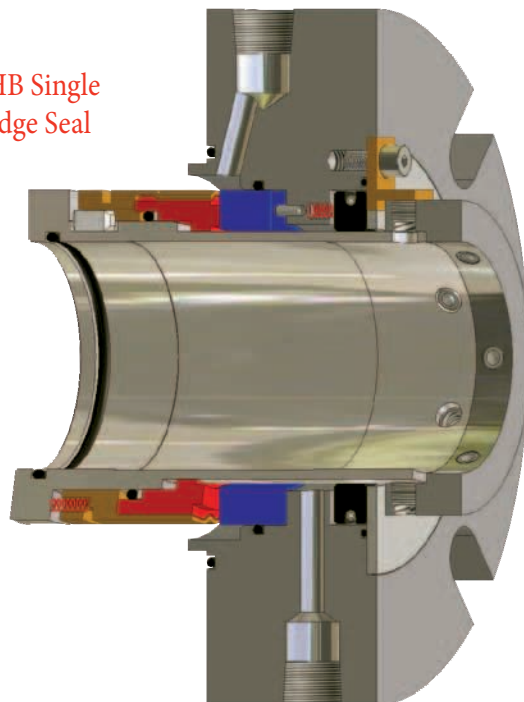
Applications (product and service) include but are not limited to the following:

- |                        |   |
|------------------------|---|
| • Refined products     | • Crude oil                               |
| • Gas oil              | • Ammonia                                 |
| • Heavy crude          | • Bitumen                                 |
| • NGL                  | • Carbon dioxide                          |
| • Light products       | • High torque and high viscosity services |
| • Fluids in all phases |   |

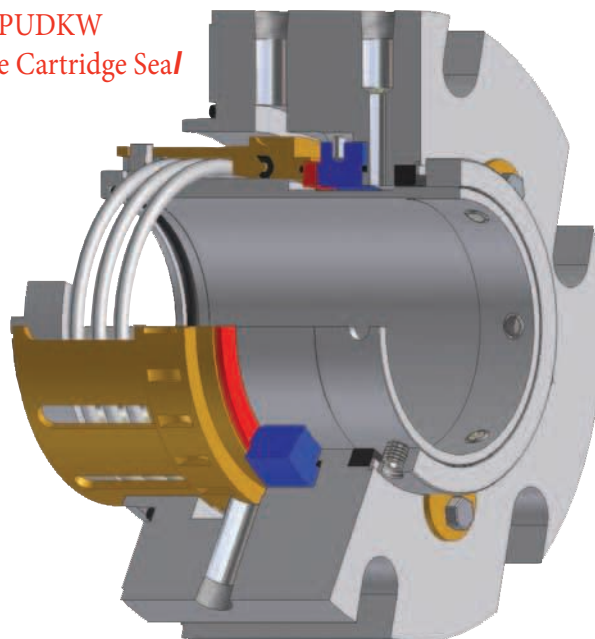
Seal types and designs cover the full range of applications:

- Single seals low to high pressure (750 PSI to 3,000 PSI).
- Dual seals (Double and Tandem).
- Containment seals, wet and dry.
- Gas seals, noncontacting and contacting.
- Multiple sealing plans depending on applications.
- Pusher or nonpusher.
- Unique face combinations for hard to solve applications.

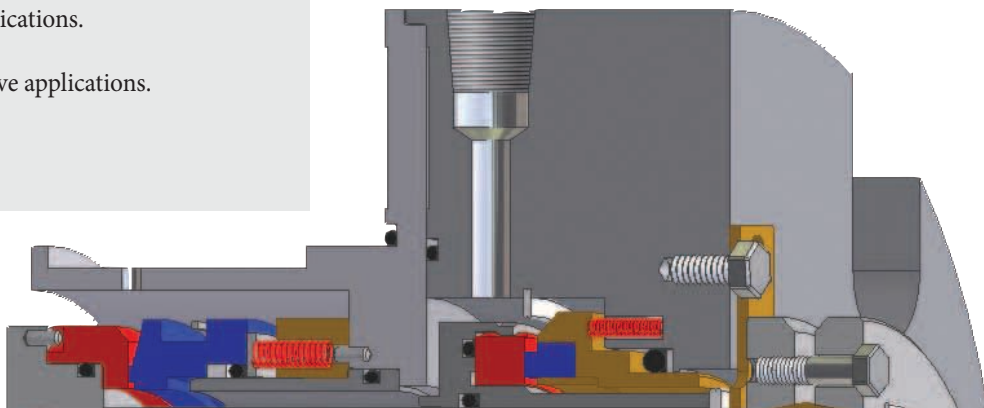
PPC HB Single  
Cartridge Seal



PPC PUDKW  
Single Cartridge Seal



PPC HBVHH-RS Dual Cartridge Seal



## API 682 MECHANICAL SEALS

PPC has a long history of API seal manufacturing since our company's founding in 1958. We have a full range of API 682 seals available for all your needs.

PPC's API 682 seals are as follows:

- Three categories (1, 2 and 3)
- Three types (A, B and C)
- Three arrangements (1, 2 and 3)

PPC produces seals to meet all of the multiple combinations as set forth in API 682. We design and manufacture to all API 682 guidelines.

- **Contacting Wet (CW)** seals: seal design where the mating faces are not designed to intentionally create aerodynamic or hydrodynamic forces to sustain a specific separation gap.
- **Noncontacting (NC)** seals (wet or dry): seal design where the mating faces are designed to intentionally create aerodynamic or hydrodynamic forces to sustain a specific separation gap.
- **Containment seals (CS)**: are either contacting or noncontacting seals mounted into the seal chamber.

PPC manufactures all of its API 682 seals in-house in Baton Rouge, Louisiana. We manufacture both single ply bellows and double ply bellows.

As the industry has progressed, PPC has remained at the forefront of sealing technology for Refining, Pipelines, E&P, and Offshore.

- **Contacting dry running** mechanical seals for both primary seals and secondary containment seals.
- **Gas lift off seals**, both Uni-Directional and Bi-Directional. They can be used as primary seals or secondary containment seals.
- **Diamond face seals**. PPC is a leader in the utilizing of Diamond Faces and Carbide Derivatives for extreme applications. We are one of the only companies to use both technologies successfully.

All API seals are manufactured in Baton Rouge, LA from only domestic and Western European raw materials.

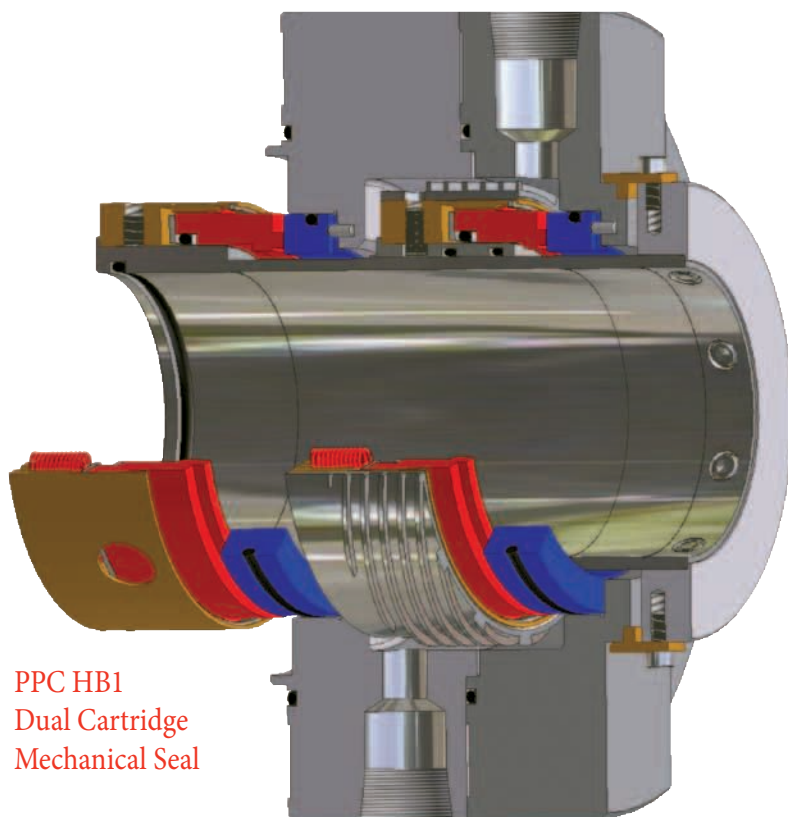
## 682A PUSHER SEALS:

PPC's 682A is a pusher style seal with an o-ring secondary and is available in all 3 arrangements: single, tandem and double. The 682A Seals are pusher seals with multiple springs and a flexible element that normally rotates. The seals are also available as a stationary design with nonrotating springs. Typical applications: Acids, Alkylation, Catalytic Cracking, Caustic and Chlor-Alkali, Crude Handling and Treatment, Crude Pipeline, Delayed Coking, Distillation, Heavy Oil, Hydrocracking, Hydrotreating, Pharmaceuticals, Pipelines, Polymers, Slurry Processing, Solvents, Terminal Pumps, Utilities, Volatile Organic Compounds, Waste Processing, and Water Applications.

**PPC 682A** is a Type A seal. They are balanced, inside-mounted, cartridge design, pusher seals with multiple springs and a flexible element. Secondary sealing elements are Elastomeric O-rings. Arrangement 2 as shown.

### TECHNICAL DATA:

Temperatures:	0°F to 400°F, please consult with PPC for applications exceeding 400°F.
Pressures:	Up to 1000 PSIG, depending on size and speed.
Speed:	Up to 3600 RPM



PPC HB1  
Dual Cartridge  
Mechanical Seal

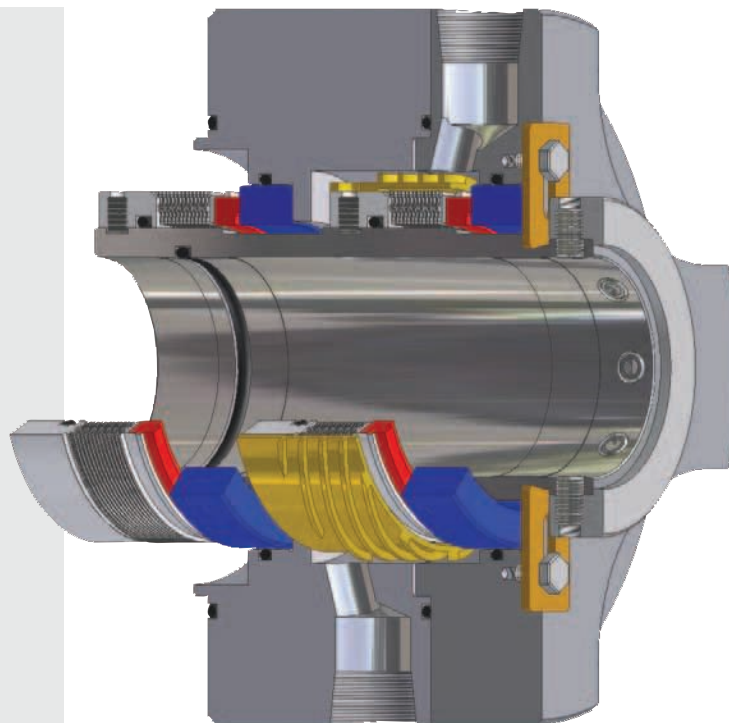
## 682B METAL BELLOWS SEALS:

PPC's 682B metal bellows mechanical seals with elastomeric secondary are available in all 3 arrangements: single, tandem and double. PPC manufactures all metal bellows in-house. Sample applications: Acid Transfer, Alkylation, Auxiliary, Catalytic Cracking, Caustic and Chlor-Alkali, Crude Handling and Treatment, Delayed Coking, Distillation, Heavy Oil and Upgrading, Hydrocracking, Hydrotreating, Logistics and Tank Farm, Pharmaceuticals, Polymers, SAGD, Slurry Processing, Solvents, Utilities, Volatile Organic Compounds, Waste Processing, Water Handling, and Treatment, and Water Injection.

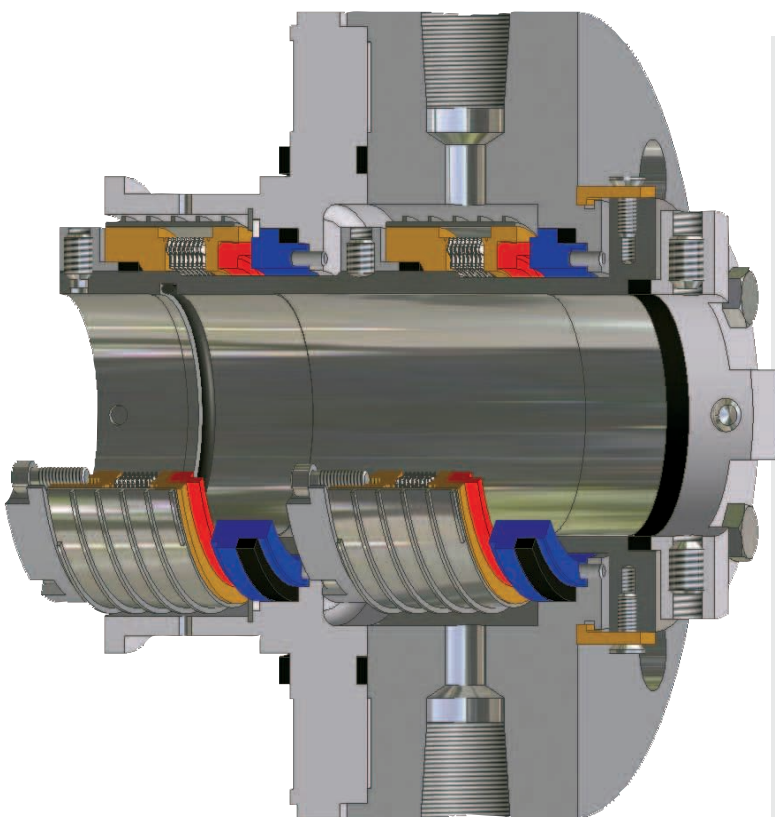
**PPC 682B** is a Type B seal. It is a balanced, inside mounted, cartridge-design, nonpusher (metal bellows) seal in which the flexible element normally rotates. The secondary sealing elements are elastomeric o-rings. Arrangement 2 as shown.

### TECHNICAL DATA:

Temperatures: -40°F to 400°F, please consult with PPC for applications exceeding 400°F.  
 Pressures: Up to 300 PSIG, depending on size and speed.  
 Speed: Up to 3600 RPM



PPC 682B Dual Metal Bellows Cartridge Seal



PPC 682C Dual High Temperature Metal Bellows Cartridge Seal

## 682C HIGH TEMPERATURE METAL BELLOWS SEAL:

PPC's 682C High temperature metal bellows mechanical seals with grafoil secondary are available in all 3 arrangements: single, tandem and double. The 682C seal is for extremely high temperatures where o-rings cannot be utilized. Typically used in services such as Alkylation, Asphalt, Catalytic Cracking, Crude Handling and Treatment, Delayed Coking, Distillation, Dowtherm, Heavy Oil, Hydrocracking, Hydrotreating, and Tar. Please consult PPC for applications exceeding 300 PSI.

**PPC682C** is a Type C seal. It is a balanced, inside mounted, cartridge design, nonpusher (metal bellows) seal in which the flexible element is normally stationary. Secondary sealing elements are flexible graphite. Arrangement 2 as shown

### TECHNICAL DATA:

Temperatures: -100°F to 900°F, please consult with PPC for applications exceeding 900°F  
 Pressures: Up to 300 PSIG, depending on size and speed.  
 Speed: Up to 3600 RPM



## Engineered Sealing Systems

To support our extensive line of mechanical seals, PPC manufactures and supplies a complete line of seal support systems, seal leakage detection systems, and gas seal support systems.

Systems include but are not limited to:

- API Plan 21, 23 Heat Exchangers
- API Plan 32 systems. Fully integrated systems available, valves, flow meters, PSI gauges, etc.
- API 65A and 65B leak detection systems.
- API 52, 53A, 53B and 53C systems. We offer standard systems and fully customizable systems. The systems available include full API compliant units and a similar ANSI versions.
- API 54/55 Engineered forced flow systems for stand alone operation (skid mounted).
- API 72, 74, 75, 76 Support systems: Secondary containment, buffer gas, Pressurized barrier gas, secondary containment-condensing leakage, secondary containment-non-condensing leakage.

Contact PPC for your specific needs.

PPC  
Plan 53B



Throughout PPC's long history we have provided seal solutions in just about every industry. We have engineered and manufactured seals for almost every type of rotating equipment imaginable.

API (Refining) to Waste Water Treatment.

- Air Separation Plants
- Alumina Plants
- Artificial Sweeteners
- Barges
- Bio Fuels Plants:
  - diesel, ethanol, methanol
- Brewing
- Carbon Dioxide Plants
- Chip Manufacturing Plants
- Chlorine/Caustic Plants
- Corn Processing
- Cryogenic
- Distillation
- Enzyme Manufacturing
- Ethanol Processing
- Fertilizer Plants
- Food Processing
- Fractionation
- Herbicide Plants
- Juice Plants
- Marine
- MDI Plants
- Methanol Processing
- Midstream
- Mining
- Olefins Plants
- Pesticide Plants
- Petrochemical Plants
- Pharmaceuticals
- Phosphate Plants
- Pipelines
- Plastics Plants
- Power Generation
- Pulp and Paper
- Refineries
- Resin Plants
- Rubber Plants
- Solar Plants
- Steel Mills
- Sugar
- Sugar Refining
- Tank Farms
- Tanning Plants
- Terminals
- Waste Water
- Water Treatment

