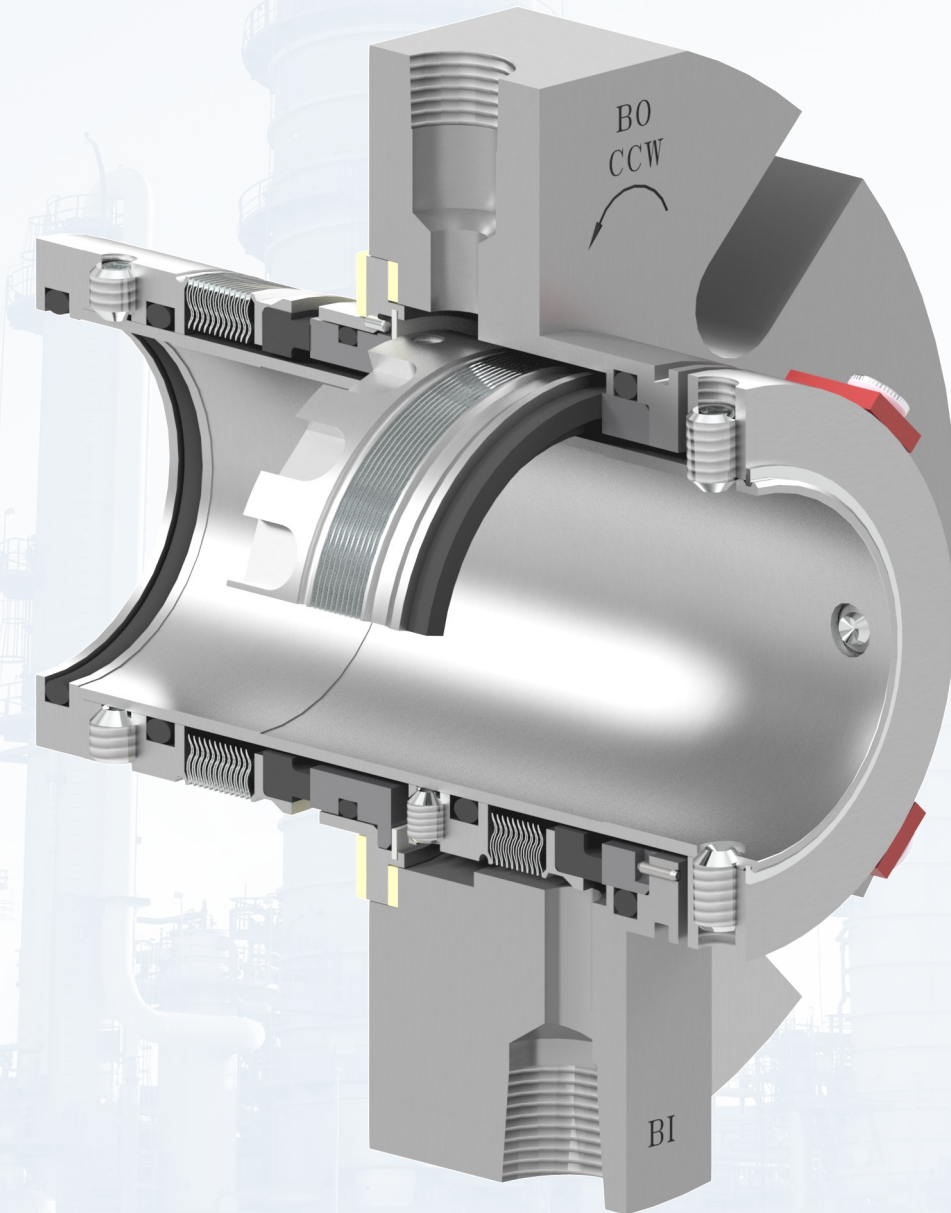


# Ultraseal 2000 Cartridge Seal

*Dual metal bellows seal*



## DESCRIPTION

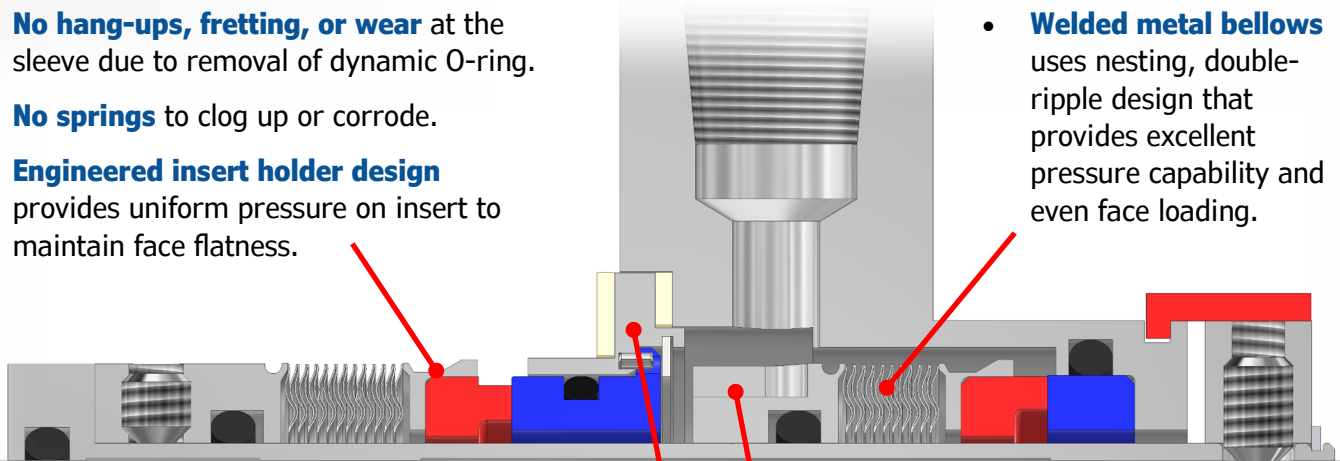
The Ultraseal 2000 is PPC's universal cartridge type dual bellows seal. The primary benefit of the metal bellows design is the elimination of the dynamic O-ring in the mechanical seal. The welded bellows acts as both the spring element and the dynamic seal. This allows the seal to be utilized in many applications where chemical attack or high heat affect the O-rings. The bellows is also inherently hydraulically balanced for minimal heat generation at the faces. Additionally, less expensive elastomers may be utilized given all of the applications are static. The seal dynamics are not affected by the elastomers swelling in response to the chemicals or heat. The Ultraseal 2000 comes standard with an integral pumping ring for forced circulation of barrier and buffer fluids to provide increased cooling.

The Ultraseal 2000 is designed and available in sizes to fit most popular general-duty process pumps including ANSI standard and large bore (Ultraseal 2000+) seal chambers. Special designs are also available to fit non-standard equipment.

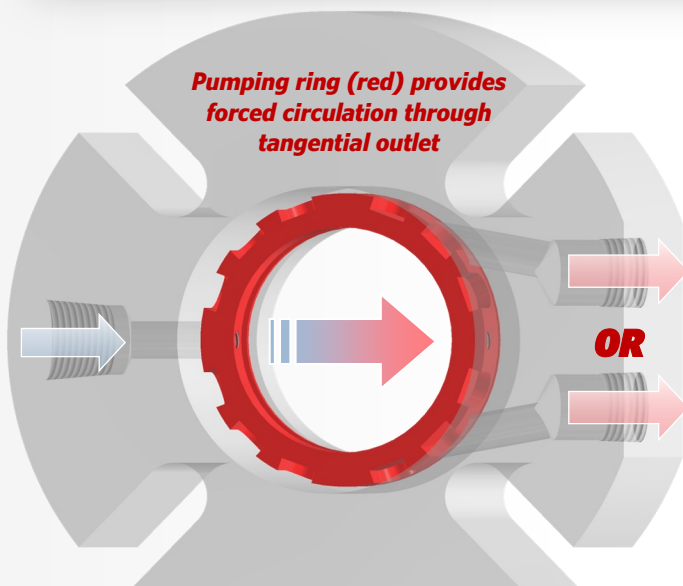
## FEATURES

- **No hang-ups, fretting, or wear** at the sleeve due to removal of dynamic O-ring.
- **No springs** to clog up or corrode.
- **Engineered insert holder design** provides uniform pressure on insert to maintain face flatness.

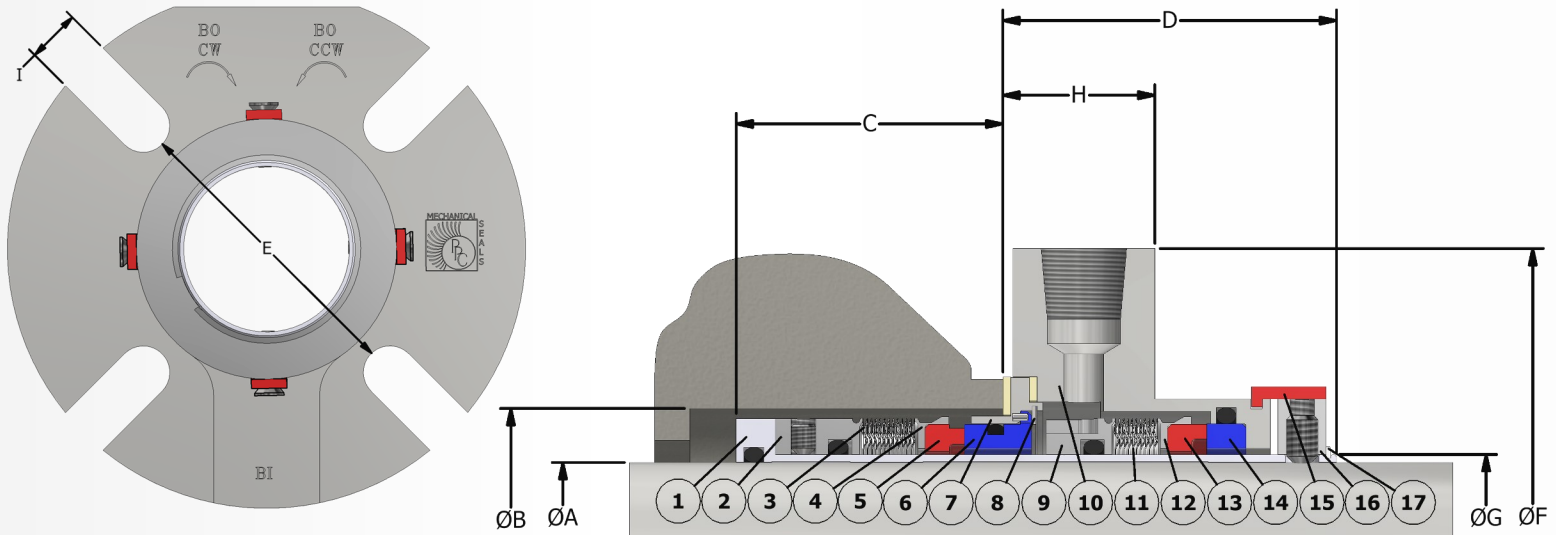
- **Welded metal bellows** uses nesting, double-ripple design that provides excellent pressure capability and even face loading.



- **Standard pumping slots and tangential fluid outlet** provide improved circulation and cooling of the seal faces.
- **Two-piece gland design** allows for exotic gland adapter metallurgy with less expensive non-wetted gland to reduce costs.
- **Inner seal faces remain closed** in the case of a pressure reversal or when barrier fluid pressure is lost.
- **Cartridge assembly is preset**, eliminating installation error. Cartridge design also prevents the fretting of any pump parts.



## SEAL DIMENSIONAL DATA



**ULTRASEAL 2000 DIMENSIONS FOR STANDARD BORE SEAL CHAMBER**

A SEAL SIZE	B (MIN)	B (MAX)	C	D	E	F	G	H	I
1.125	1.750	1.812	1.62	1.89	2.44	3.75	1.250	1.22	0.44
1.375	2.000	2.030	1.62	1.89	2.75	4.00	1.500	1.22	0.44
1.500	2.250	2.437	2.06	2.62	2.88	4.48	1.625	1.75	0.44
1.625	2.375	2.562	2.06	2.62	3.02	4.98	1.750	1.18	0.56
1.750	2.500	2.812	2.12	2.62	3.17	5.48	1.875	1.18	0.56
1.875	2.625	2.937	2.12	2.62	3.31	5.48	2.000	1.18	0.56
2.000	2.750	3.187	2.12	2.62	3.53	5.48	2.125	1.18	0.56
2.125	2.875	3.437	2.12	2.62	3.78	5.98	2.250	1.18	0.69
2.250	3.000	3.562	2.12	2.62	3.92	5.98	2.375	1.18	0.69
2.500	3.375	3.812	2.19	2.62	4.14	6.48	2.625	1.18	0.69
2.625	3.500	3.937	2.19	2.62	4.31	6.48	2.750	1.18	0.69

**ULTRASEAL 2000+ DIMENSIONS FOR LARGE BORE SEAL CHAMBER**

A SEAL SIZE	B (MIN)	B (MAX)	C	D	E	F	G	H	I
1.125+	2.500	2.906	1.81	1.90	3.75 B.C.	4.63	1.250	1.29	0.44 HOLES
1.375+	2.781	3.219	1.81	1.90	3.56	5.13	1.500	1.29	0.44
1.750+	3.469	4.188	2.11	2.63	4.94	6.44	1.875	1.19	0.56
1.875+	3.406	4.062	2.02	2.72	5.00 B.C.	5.88	2.000	1.19	0.56 HOLES
2.125+	3.875	4.437	2.12	2.62	4.81	7.13	2.250	1.19	0.69
2.500+	4.500	5.125	1.98	2.82	5.44	7.88	2.625	1.53	0.69

Item	Description
1	Sleeve
2	IB Bellows Collar
3	IB Bellows
4	IB Insert Holder
5	IB Insert (Rotary Face)
6	IB Stationary Face
7	Gland Adapter
8	Retaining Ring
9	OB Bellows Collar
10	Gland
11	OB Bellows
12	OB Insert Holder
13	OB Insert (Rotary Face)
14	OB Stationary Face
15	Setting Spacers
16	Drive Collar
17	Retaining Ring

Note: For complete dimensional data, request a copy of typical drawing T-3238 from a PPC Mechanical Seals representative.

## MATERIALS OF CONSTRUCTION

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

**Seal Face Options:**

<b>Rotary</b>	<b>Stationary</b>
Carbon (Resin-filled)	Sintered Silicon Carbide
Tungsten Carbide	
<i>Other materials available upon request</i>	

**Elastomers:** Fluoroelastomer (FKM), EPDM, AFLAS®, Perfluoroelastomer (FFKM)  
*Other materials available upon request*

**Gland Gasket:** GYLON® (Filled PTFE)

**Metal Bellows:** Alloy C-276

AFLAS® is a registered trademark of Asahi Glass Co., Ltd.  
GYLON® is a registered trademark of Garlock Sealing Technologies LLC

## OPERATING CONDITIONS

**Pressure Capability:**

In tandem arrangement:	Up to 300 psig (20 bar g) on inner faces
In double arrangement:	50 psi (3.5 bar) differential on inner faces, 300 psig on outer faces
<i>Dependent on size, speed, and sealed fluid properties</i>	

**Process Temperature:** -40 to 400 °F (-40 to 204 °C)  
*Dependent on application and elastomer material*  
*Contact PPC for specific applications outside these parameters*

**Surface Speed:** Up to 4500 fpm (23 m/s)

## APPLICATIONS

- Chemical Processing
- Petrochemicals
- Pharmaceutical
- Heavy Oils and Tars
- Biofuels



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