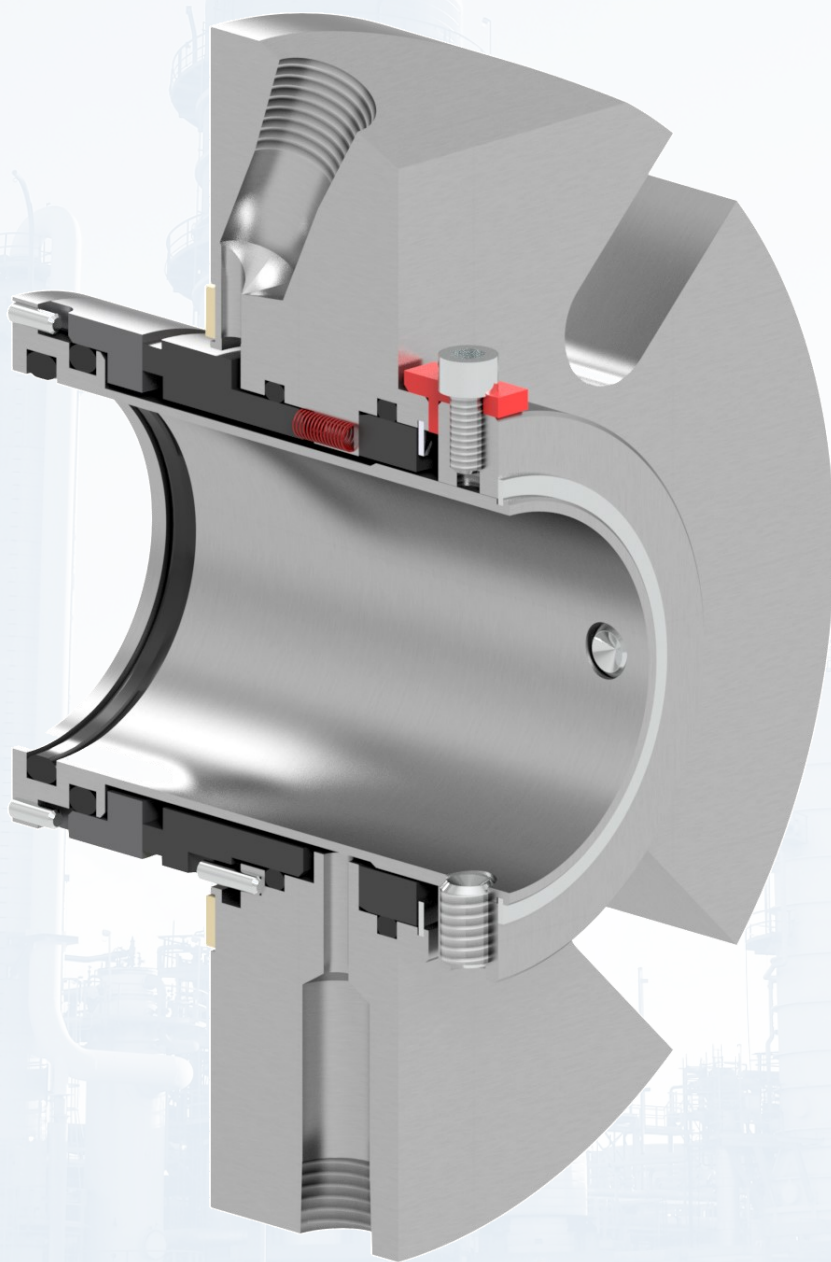




1500 Series Cartridge Seal

Universal single pusher seal



CREATING SEALING SOLUTIONS THROUGH INNOVATIVE ENGINEERING
MADE IN THE USA

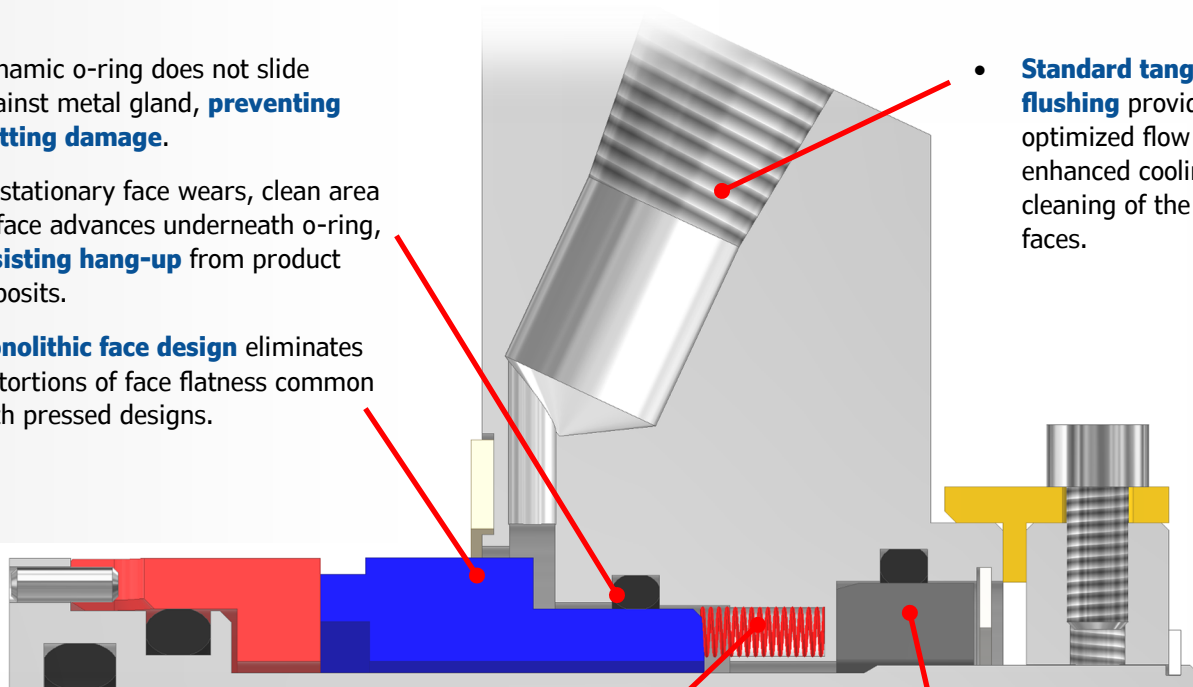
DESCRIPTION

The 1500 series of single cartridge seals are robust seals for use in all industries: chemical, petrochemical, power, steel, mining, water, pharma, and food. The standard 1500 seal features a substantial throttle bushing and quench/drain connections on the gland as standard.

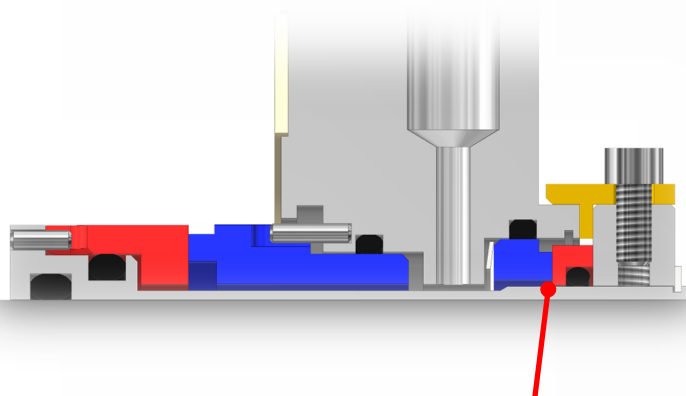
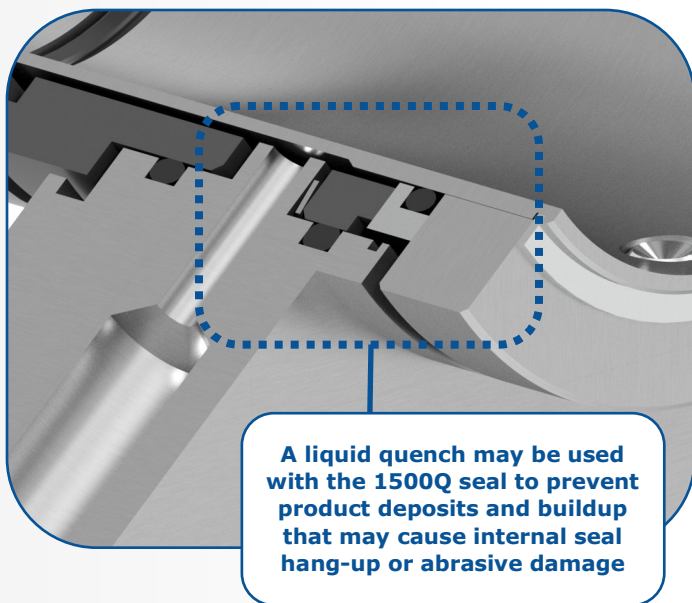
Major advantages include stationary springs and monolithic (non-pressed) face designs with large cross-sections. The face design prevents distortions and excessive leakage, even at the seal's operating limits (pressure, temperature and speed). The 1500 is designed and available in sizes to fit most popular general-duty process pumps including ANSI standard and plus (1500+) seal chambers.

The 1500 series also includes the 1500Q with integrated quench containment seal faces, as well as our 1500F, covering engineered and custom designs for special applications.

FEATURES

- 
- Dynamic o-ring does not slide against metal gland, **preventing fretting damage**.
 - As stationary face wears, clean area of face advances underneath o-ring, **resisting hang-up** from product deposits.
 - **Monolithic face design** eliminates distortions of face flatness common with pressed designs.
 - **Standard tangential flushing** provides an optimized flow path for enhanced cooling and cleaning of the seal faces.
 - **Stationary spring design outside the product** accommodates axial movement, resists centrifugal forces and self-aligns the seal faces to account for angular misalignment of the equipment.
 - **Standard throttle bushing** in gland with quench and drain ports allows for safe containment and routing of leakage in the case of seal failure.
 - **Cartridge assembly is preset**, eliminating installation error. Cartridge design also prevents the fretting of any pump parts.

1500Q CARTRIDGE SEAL



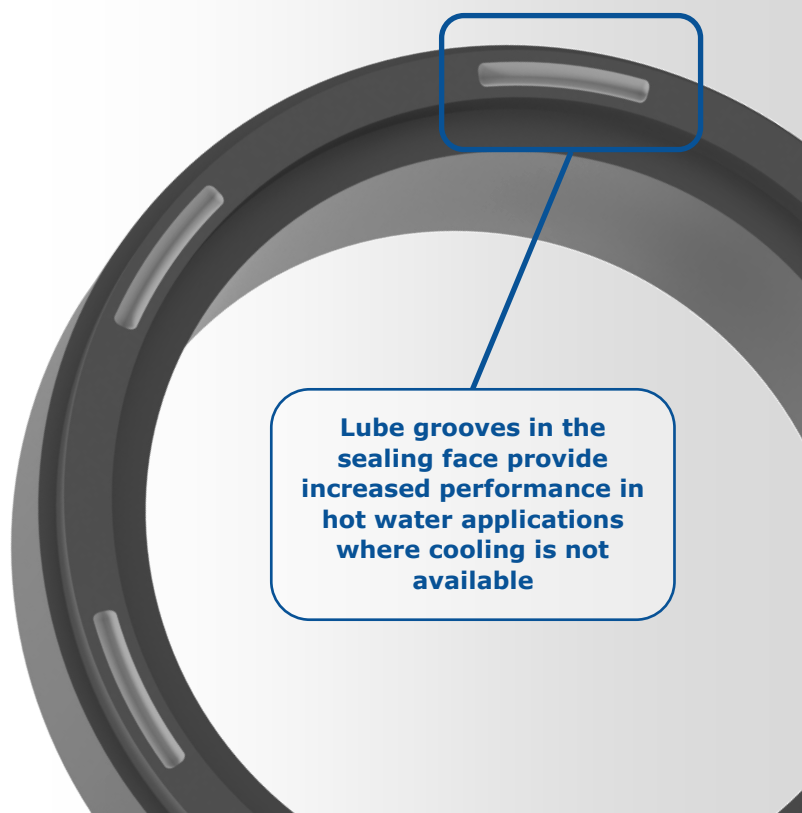
The 1500Q seal variant is designed with a set of seal faces in the gland to **fully contain a liquid quench**. Leakage is minimized compared to a bushing and no sleeve wear is experienced when compared to a radial lip seal.

Product leakage to the atmosphere may also be temporarily contained in the event of a primary seal failure.

1500F CARTRIDGE SEAL

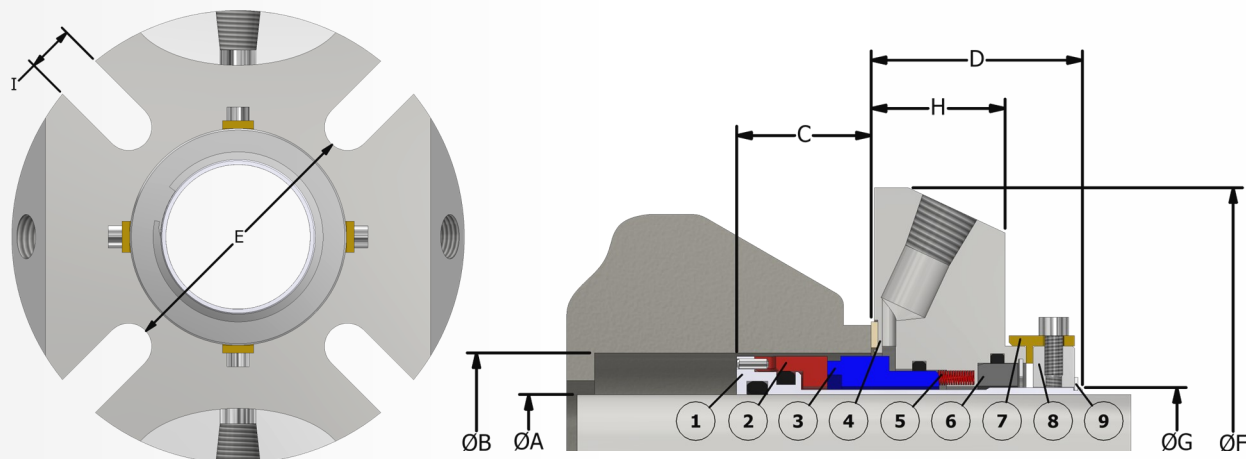
For engineered solutions or non-standard equipment, the 1500F seal is available, with the 'F' indicating special materials or part geometry. Core parts from the 1500 seal are adapted and/or modified to meet the needs of most any application. Cases where the 1500F designation would be utilized include the following:

- **Premium material upgrades**, such as metal-filled carbon seal faces or exotic metallurgy
- Adjustments to hydraulic balance or special face topography features such as **lube grooves**
- Glands adapted to fit **non-ANSI equipment** such as mixers and API 610 pumps
- Designs with **integrated pumping rings** for use in Plan 23 piping arrangements
- An upgrade from the standard fixed gland bushing to a **floating bushing design**
- **Integrated bearing** element in the seal gland



SEAL DIMENSIONAL DATA

1500 Series Seal



Item	Description
1	Sleeve
2	Rotary Face
3	Stationary Face
4	Gland
5	Springs
6	Bushing
7	Setting Clip
8	Collar
9	Retaining Ring

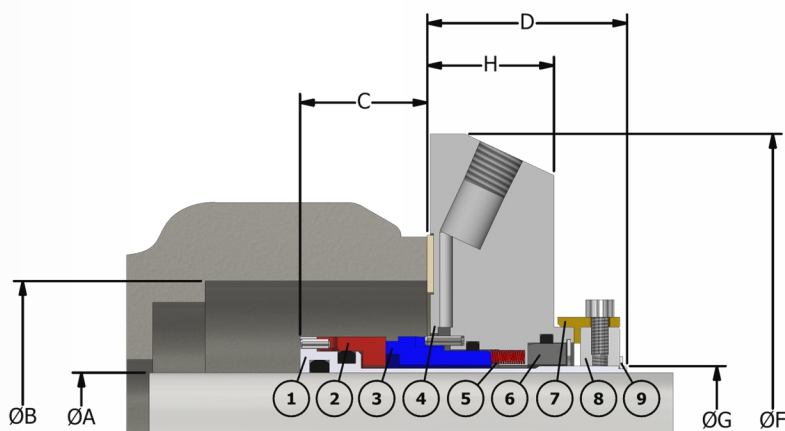
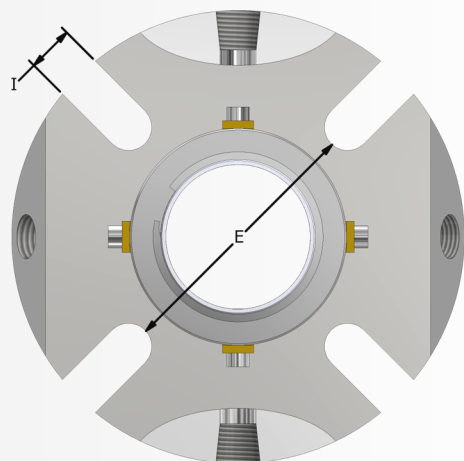
1500 DIMENSIONS FOR STANDARD BORE SEAL CHAMBER

A SEAL SIZE	B (MIN)	B (MAX)	C	D	E	F	G	H	I
1.000	1.625	2.010	1.21	1.91	2.31	4.11	1.125	1.21	0.44
1.125	1.750	2.040	1.21	1.91	2.44	4.24	1.250	1.21	0.44
1.250	1.875	2.270	1.21	1.91	2.69	4.36	1.375	1.21	0.56
1.375	2.000	2.430	1.21	1.91	2.75	4.00	1.500	1.21	0.44
1.500	2.250	2.630	1.21	1.91	2.94	4.98	1.625	1.21	0.56
1.625	2.375	2.690	1.21	1.91	3.06	4.99	1.750	1.21	0.56
1.750	2.500	2.810	1.21	1.91	3.19	5.48	1.875	1.21	0.56
1.875	2.625	2.940	1.21	1.91	3.31	5.48	2.000	1.21	0.56
2.000	2.750	3.190	1.21	1.91	3.44	5.49	2.125	1.21	0.56
2.125	2.875	3.440	1.21	1.91	3.81	5.99	2.250	1.21	0.69
2.250	3.000	3.560	1.21	1.91	3.94	6.24	2.375	1.21	0.69
2.375	3.125	3.590	1.21	1.91	4.06	6.24	2.500	1.21	0.69
2.500	3.250	3.810	1.21	1.91	4.19	6.48	2.625	1.21	0.69
2.625	3.375	4.070	1.21	1.91	4.75	7.62	2.750	1.21	0.69
2.750	3.750	4.190	1.36	2.22	4.88	7.74	3.000	1.43	0.69
2.875	3.875	4.315	1.36	2.22	5.00	7.89	3.125	1.43	0.69
3.000	4.000	4.440	1.36	2.22	5.06	8.00	3.250	1.43	0.69
3.125	4.125	4.565	1.36	2.22	5.25	8.13	3.375	1.43	0.69
3.250	4.250	4.690	1.36	2.22	5.38	8.25	3.500	1.43	0.69
3.375	4.375	4.815	1.36	2.22	5.50	8.37	3.625	1.43	0.81
3.500	4.500	4.940	1.36	2.22	5.62	8.50	3.750	1.43	0.81
3.625	4.625	5.065	1.36	2.22	5.75	8.62	3.875	1.43	0.81
3.750	4.750	5.190	1.36	2.22	5.88	8.75	4.000	1.43	0.81
4.000	5.000	5.440	1.36	2.22	6.09	8.98	4.250	1.43	0.81
4.500	5.500	5.940	1.36	2.22	6.59	9.48	4.750	1.43	0.81
4.750	5.750	6.190	1.36	2.22	6.81	9.75	5.000	1.43	0.81

Note: For complete dimensional data, request a copy of typical drawing T-3537 from a PPC Mechanical Seals representative.

SEAL DIMENSIONAL DATA

1500 Series Seal



Item	Description
1	Sleeve
2	Rotary Face
3	Stationary Face
4	Gland
5	Springs
6	Bushing
7	Setting Clip
8	Collar
9	Retaining Ring

1500+ DIMENSIONS FOR BIG BORE SEAL CHAMBER

A SEAL SIZE	B (MIN)	B (MAX)	C	D	E	F	G	H	I
1.125+	2.500	2.906	1.21	1.91	3.31	4.62	1.250	1.21	0.44
1.375+	2.781	3.219	1.21	1.91	3.53	5.31	1.500	1.21	0.44
1.750+	3.469	4.188	1.21	1.91	4.50	6.31	1.875	1.21	0.56
1.875+	3.406	4.062	1.21	1.91	4.41	6.25	2.000	1.21	0.56
2.125+	3.437	4.375	1.21	1.91	4.81	7.13	2.250	1.21	0.69
2.500+	4.156	5.187	1.21	1.91	5.44	7.88	2.625	1.21	0.69
2.625+	4.156	4.812	1.21	1.91	5.44	7.50	2.750	1.21	0.56

Note: For complete dimensional data, request a copy of typical drawing T-3537 from a PPC Mechanical Seals representative.

MATERIALS OF CONSTRUCTION

1500 Series Seal

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

Seal Face Combinations:

Stationary		Rotary
Carbon (Resin-filled)	vs.	Sintered Silicon Carbide
Carbon (Resin-filled)	vs.	Tungsten Carbide
Tungsten Carbide	vs.	Tungsten Carbide
Tungsten Carbide	vs.	Sintered Silicon Carbide
Sintered Silicon Carbide	vs.	Sintered Silicon Carbide

Other materials available including metal-filled carbon and diamond (1500F)

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

Gland Gasket: GYLON® (Filled PTFE)

Springs: 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

Seal Chamber Pressure: Up to 300 psig (20 bar g)

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
- Pulp and Paper
- Power
- Petrochemicals
- Corn and Grains
- Water/Wastewater Treatment
- Pharmaceutical
- Mining
- Biofuels
- Steel
- Food



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