

SINGLE EXTREME HIGH-PRESSURE, HIGH-DUTY PUSHER SEAL

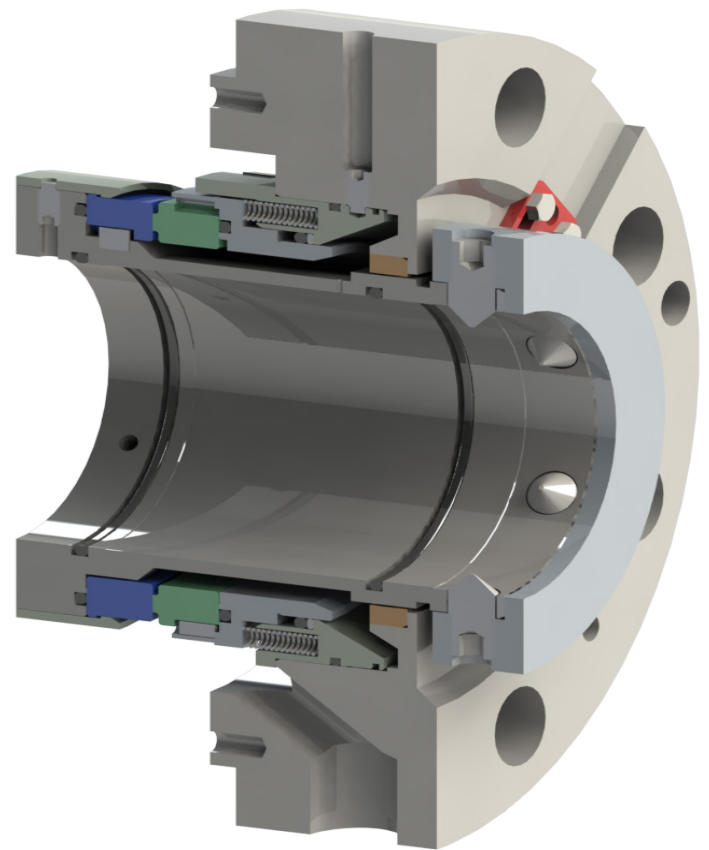
High pressure, single stationary multi-spring

The **Style HPPS seal** is designed for exceptional reliability in demanding applications, such as high-pressure, high-speed, and viscous services. This balanced stationary multispring cartridge seal features robust drive mechanisms and advanced seal face technology, optimized to handle high torque loads and ensure lasting performance.

- **Versatile across industries:** ideal for oil and gas, petrochemical, and power generation
- **High torque, high speed:** engineered for extreme torque loads and rapid surface speeds, perfect for high-energy pumps in challenging environments
- **API 682 conforming:** this field-proven design meets or exceeds API 682 standards, assuring performance, safety, and reliability.

COMMON APPLICATIONS

- Crude oil
- Bitumen
- Produced water
- Boiler feed water
- Amine
- Ammonia
- Seawater
- Light hydrocarbons
- Pipeline Service
- Natural Gas Liquids (NGLs)



MATERIALS OF CONSTRUCTION

Rotary Faces	Silicon carbide, diamond coating
Stationary Faces	Proprietary FlexSiCG (siliconized carbon/graphite), diamond coating
Springs	Hastelloy C-276
Metal Parts	316 stainless steel, Alloy 255, Hastelloy C-276
O. Rings	Fluoroelastomers, EPDM, TFEP, Perfluoroelastomers

OPERATING PARAMETERS

Max Temp	550°F (290°C)
Max Pressure	2,000 psi (138 bar)
Max Speed	10,000 FPM (50 m/s)

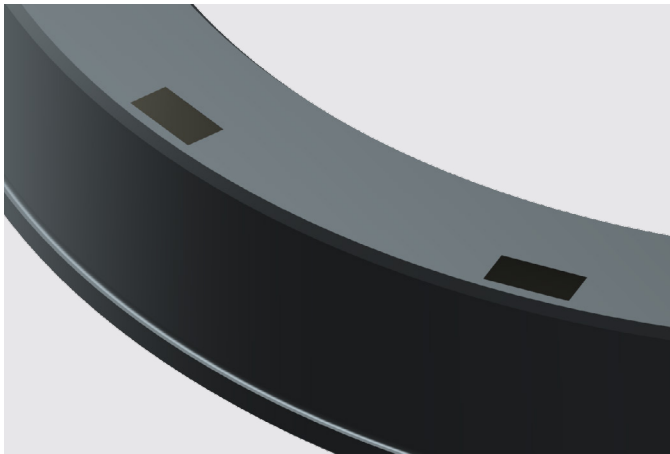
*Max Temperature / pressure / speed indicate operating extremes independently and do not imply the seal will function at these extremes at the same time. Contact Flexaseal if in doubt.

TYPE A | CATEGORY 2/3 CONTACTING WET SEALS

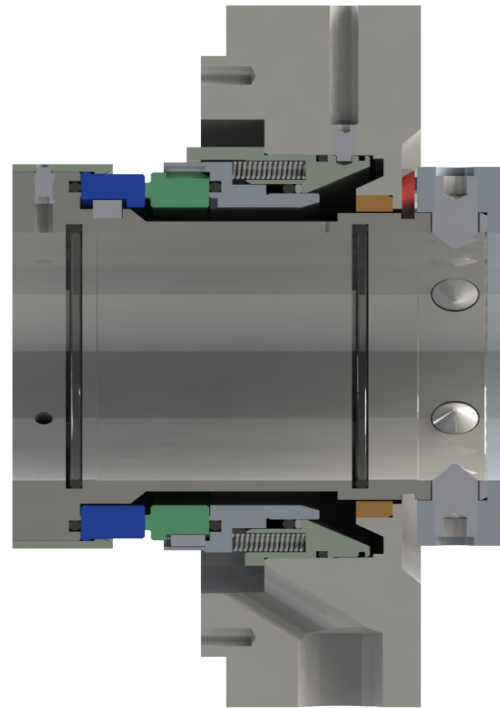
Arrangement 1

The **Flexaseal Style HPPS** addresses the challenges of sealing high pressure process fluids with low specific gravities in refinery, pipeline, and power generation industries. The seal design is highly adaptable to meet specific application needs and comes standard with:

- High-duty seal face materials
- Precision laser-etched lubrication-enhancing features on the mating ring amplify film load support, critical to long life in thin fluids like light hydrocarbons and high temperature water.



- Stationary design allows for high-peripheral speeds
- Robust metal-to-metal torque transfer to flexible stationary element eliminates wear-induced seal hang-up.
- Metal oxide coated dynamic O-ring surfaces prevent fretting wear from process vibrations



TAILORED SOLUTIONS FOR ENHANCED RELIABILITY

Style HPPS seals can be configured with optional features to meet application specific requirements, including:

- Floating carbon bushing inboard and/or outboard for seal isolation from process and leakage containment
- Radial or axial pumping ring for Plan 23 circulation in hot processes
- Multi-point flush injection for distributed cooling and vapor bubble elimination
- Style CPH outboard non-contacting containment seal for emissions control with API Plan 72/75/76

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High pressure, single stationary multi-spring

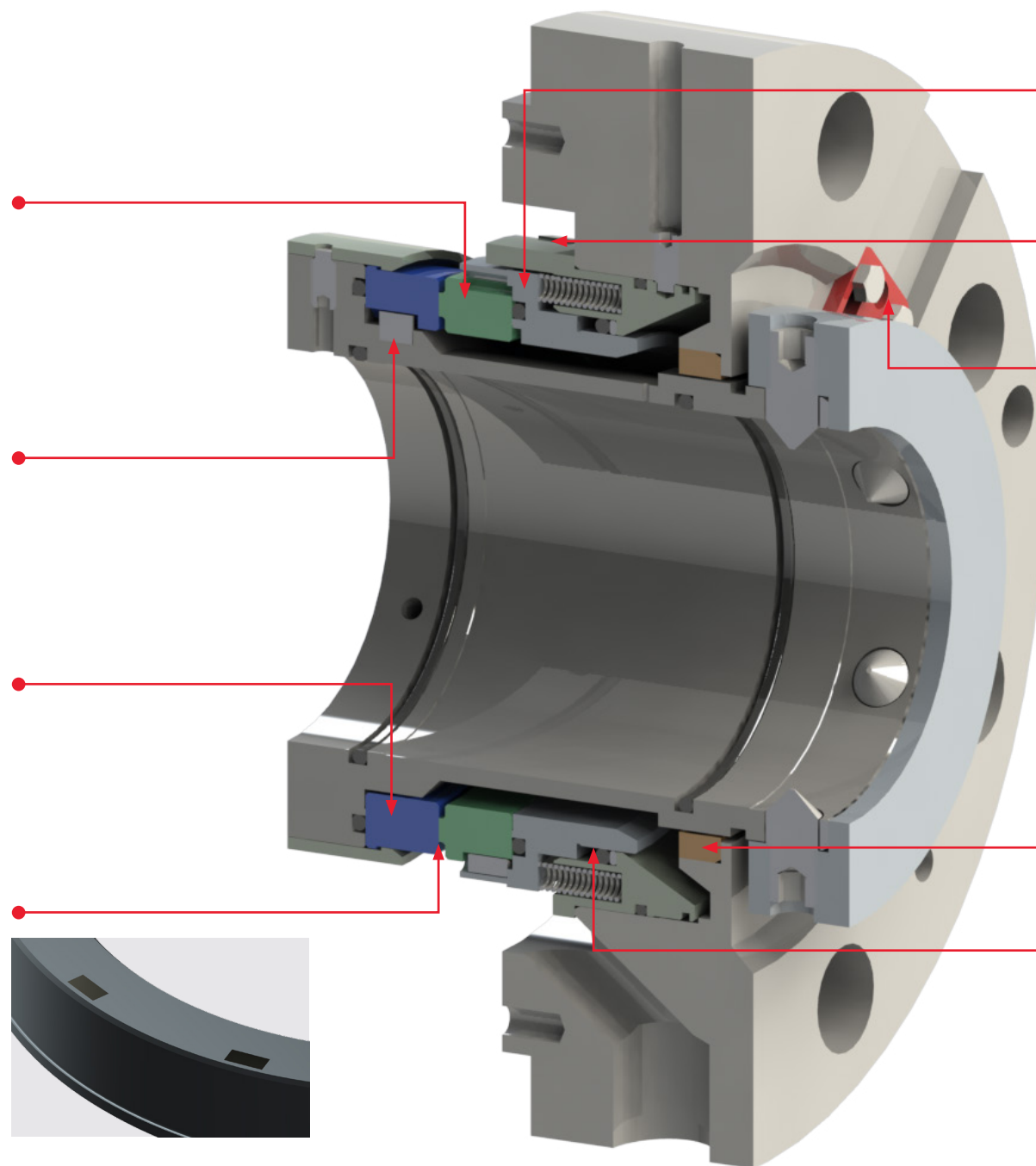
DESIGN FEATURES & BENEFITS

Premier Primary Ring Material FlexSiCG, siliconized carbon/graphite, combines the self-lubricating capabilities of carbon/graphite with rigidity and wear resistance of silicon carbide.

Unique Mating Ring Key-Drive mechanism evenly distributes drive forces and prevents point-loads, which can cause deformation and fracturing.

Near-Zero Face Deformation Under Load with FEA-optimized robust seal face geometry ensures the lubricating film is never pinched.

Lubrication Enhancing Laser-Etched Features on the mating ring amplify film load support, which significantly improves reliability in thin fluids like light hydrocarbons and high-temperature water.



• **High Peripheral Speeds** are achievable with robust stationary design.

• **Metal-to-Metal Torque Transfer** to flexible stationary element eliminates wear-induced seal hang-up.

• **Large Retained Setting Clips** for easy seal installation and removal setting clips are always with the seal.

• **Fixed Bronze Disaster Bushing**

• **Coated and Ground Dynamic O-Ring Surface** prevents fretting wear from operational vibration.