

Limited bolt load FRP flanges challenge the sealing industry with less-than-ideal sealing situations, i.e., aggressive chemicals and dramatic thermal and high-pressure system cycling.

The FR-PITA® combines the PITA® and OPRA™ designs to provide broad chemical resistance and high-tightness sealing for various applications to meet the challenging requirements of users. Long-term reliability translates into significant cost savings for our customers.



Corrugated Alloy  
C-276 Core

ePTFE Outer Facings

## The ultimate gasket for high-tightness sealing for FRP flanges

### Flanges

- ▶ Fiber reinforced plastic
- ▶ Vulnerable to inadvertent overload
- ▶ Increased risk of flange damage

### Gaskets

- ▶ Full-face type gaskets required to mitigate flange rotation
- ▶ Inadequate resultant gasket stress for most PTFE materials, require higher loads than available

### Bolting

- ▶ Limited available bolt torque to prevent flange breakage

### Design

- ▶ Live-loaded spring insert delivers high gasket recovery, unmatched thermal cycling performance and exceptional operational Tightness



Point Contact Loading



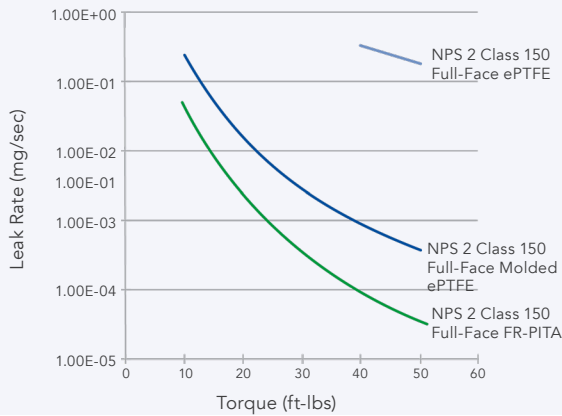
Pressure Film Highlights Concentrated Gasket Stress

VSP Technologies deploys a team of Engineers and Fluid Sealing Specialists who provide engineered solutions for your unique sealing requirements.

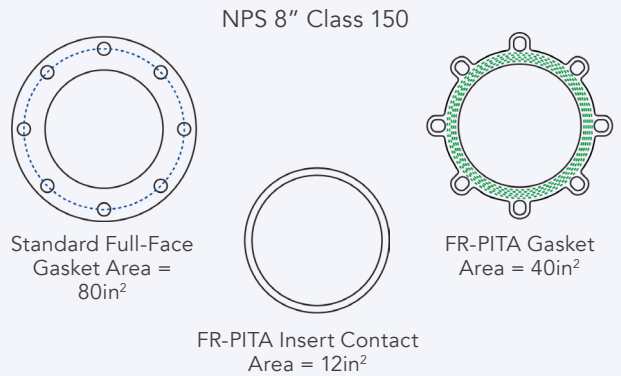
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**SPRING ENERGIZED CONSTRUCTION**

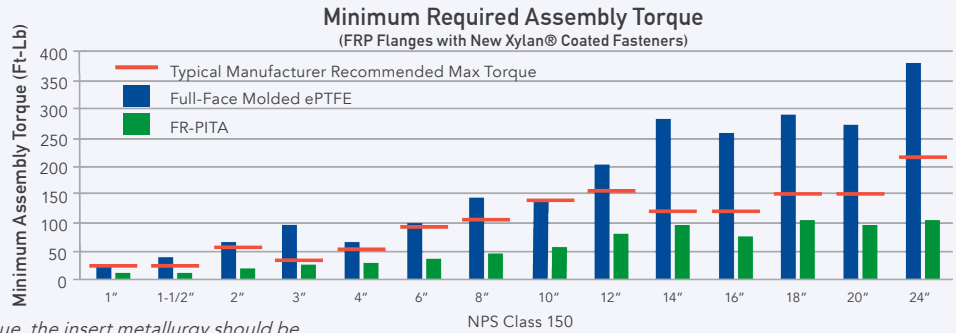
**FR-PITA maintains 10X lower leak rate than full-face molded ePTFE**



**FR-PITA combines patented OPRA and PITA technology to reduce gasket area/contact area**



**FR-PITA seals at a significantly lower minimum assembly torque than molded ePTFE and is within typical manufacturer max torque recommendations**



Note: When using minimum assembly torque, the insert metallurgy should be compatible with the process

**Product Specifications**

Temperature Range	Max= 600°F Min= -330°F
Pressure Resistance	Full vacuum to maximum flange rating
Chemical Resistance	All chemical services (pH 0-14) except molten alkali metals, elemental fluorine and aggressive tri-fluoride compounds
ASME Gasket Factors	m=2.5 y=1,200 psi
PVRC Gasket Factors (PVRC ROTT)	G <sub>B</sub> =263 psi a=0.299 G <sub>S</sub> =2.93E-10 psi
Tightness & Sealability (PVRC ROTT)	T <sub>p (max)</sub> =33,749 T <sub>p (min)</sub> =13,454
Stress Required to Achieve Helium Leak Rate of 1.02E-04 (mg/sec) @ 150 psig (NPS 4x150 Ring Gasket)	2,078 psi
Safe Reserve Operating Temperature (HOBT2 with Cycles)	500°F ASME Class 150 Service 450°F ASME Class 300 Service
Standard Insert Metallurgy	Alloy C-276

**FR-PITA Minimum Recommended Assembly Torque ASME Class 150**

NPS	TORQUE (Ft-Lb)
1	10
1.5	10
2	20
3	25
4	25
6	35
8	45
10	55
12	80
14	95
16	75
18	105
20	95
24	105

- ▶ ASME flange sizes NPS 1 - NPS 24
- ▶ Available in custom designs for vessel manways and covers