

One piece reduced area gaskets for all lightly loaded flanges: FRP, PVC, PVDF, Cast Iron & API manways.

VSP Technologies' OPRA™ Technology: Engineered Gasket Designs for Low-Torque Flange Applications **U.S. Patent #6,682,081**

- **Patented VSP OPRA™ Technology:**

- * Optimizes gasket stress in standard piping and vessel flanges based upon available bolt load/torque

- **Engineered Reduced Area Design:**

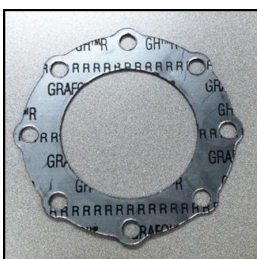
- * 20-50% lower torque than conventional full face gaskets

- **OPRA™ Type 1 Gaskets Designed for ASME and DIN Flat Face Flanges**

- * Specify material of construction (expanded PTFE, filled PTFE, flexible graphite, etc.)

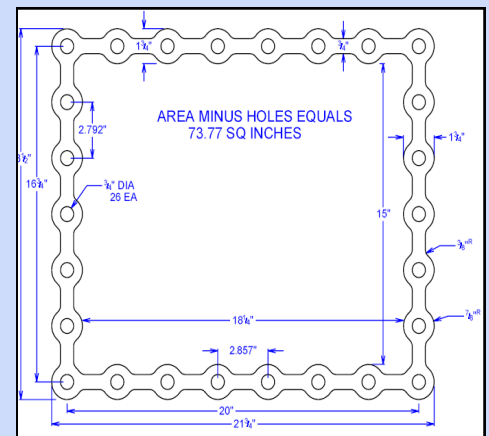
- **OPRA™ Type 2 Gaskets Custom-Designed for the Specific Flange Geometry and Bolting on Non-Standard Flanges**

- * 1-3 day design and fabrication turnaround



Reduced Area Full Face Design for U. S. Navy flanges

The OPRA™ Type 2 gaskets are custom designed to ensure optimum gasket stress/compression with the flange bolt load available.



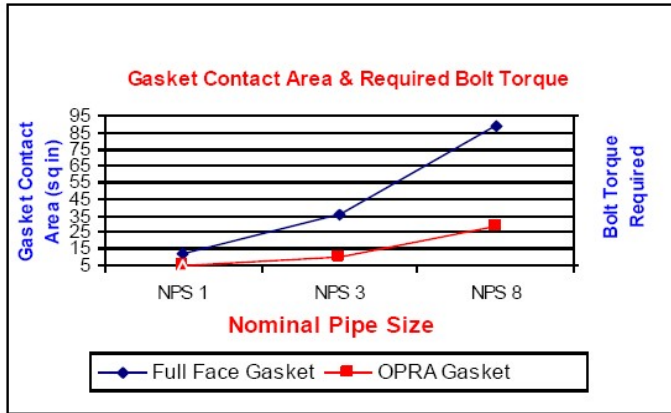
In low stress applications such as this Hydrogen Cooler, the OPRA™ design gasket receives 2X the compressive stress of the conventional full face gasket, allowing this once troublesome connection to achieve high tightness and reliability.

VSP Contact Information:

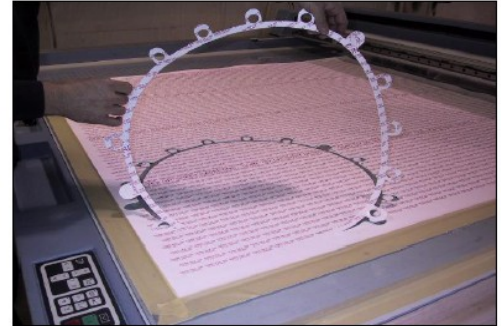
Tel: (804) 541-0812, Toll Free: 800-334-6013
 Available 24/7 – After hours, weekends & Holidays
 8140 Quality Dr., Prince George, VA 23875
 Website: www.vsptechnologies.com



The OPRA™ is a unique patented design approach providing full face geometry with reduced contact area



As gasket contact area decreases, minimum required bolt load decreases



CADD design and fabrication insures accuracy, quality & rapid order turnaround

OPRA™ Technology is Applied to all Types/Brands of Gasket Material



Filled PTFE



PTFE



Elastomers



Flexible Graphite

OPRA™ Type 1: Standard ASME Pipe Flange Gaskets Torque Table (Lubricated Bolts)
100% expanded PTFE material

Gasket Size	Optimum Assembly Torque (Ft-lbs)	Gasket Size	Optimum Assembly Torque (Ft-lbs)
NPS 1/2 x 150	20	NPS 6 x 150	70
NPS 3/4 x 150	20	NPS 8 x 150	85
NPS 1 x 150	20	NPS 10 x 150	100
NPS 1 1/4 x 150	25	NPS 12 x 150	125
NPS 1 1/2 x 150	25	NPS 14 x 150	160
NPS 2 x 150	40	NPS 16 x 150	145
NPS 2 1/2 x 150	45	NPS 18 x 150	170
NPS 3 x 150	50	NPS 20 x 150	170
NPS 4 x 150	45	NPS 24 x 150	210