



Ecomap™
Environmental Compliance
Maintenance Program

Environmentally sound practices that support sustainability efforts, consent order compliance, and restricted emissions allowance help companies achieve and maintain Best Available Control Technology (BACT) standards.

VSP tailors our Ecomap sustainability program to fit the unique needs of a plant's operation and help reduce your environmental footprint.



Controlling all elements of the fluid sealing process is critical for LDAR and enhanced LDAR programs.



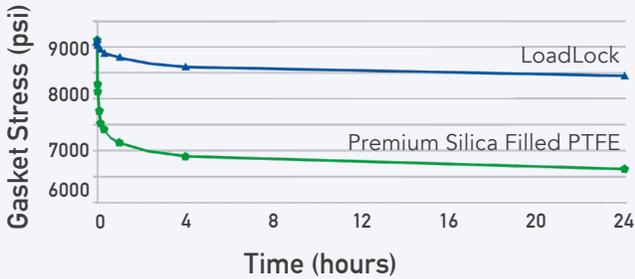
VSP Technologies deploys a team of Engineers and Fluid Sealing Specialists who provide engineered solutions for your unique sealing requirements.

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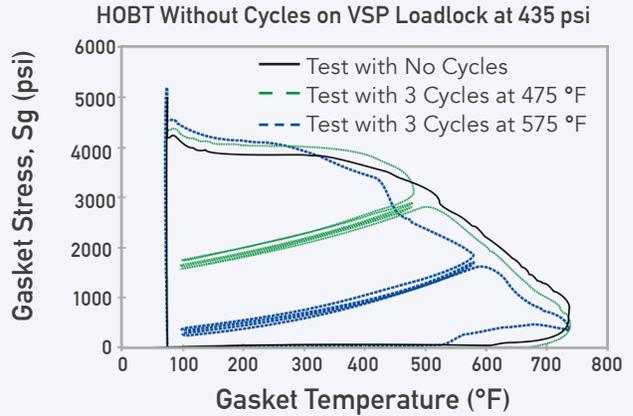
TESTING & EXPERTISE

VSP maintains an extensive database of gasket specifications and capabilities. Partnering with world-class manufacturers, third party testing labs and our in-house lab uniquely positions VSP with the expertise, experience & tools to recommend the best sealing products and maintenance practices.

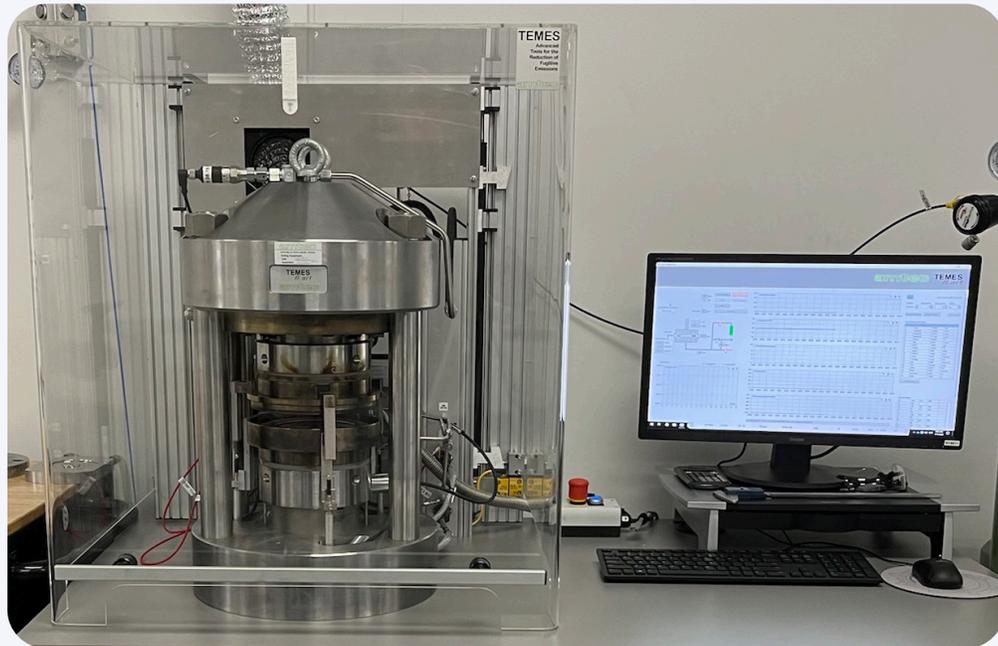
Gasket Creep/Relaxation Testing



3rd Party HOB2 Testing



In-house Testing & Training Lab



VSP works with Leading Manufacturers to evaluate, support & recommend the best available control technology for your plant processes & practices.

GASKET LEAKAGE CALCULATOR

VSP has developed a Low Emission Calculator (LEC™) to help customers identify the lowest emission gaskets for their application. We demonstrate tightness characteristics across brands and material types using 3rd party gasket factor testing and an ASME peer-reviewed method.

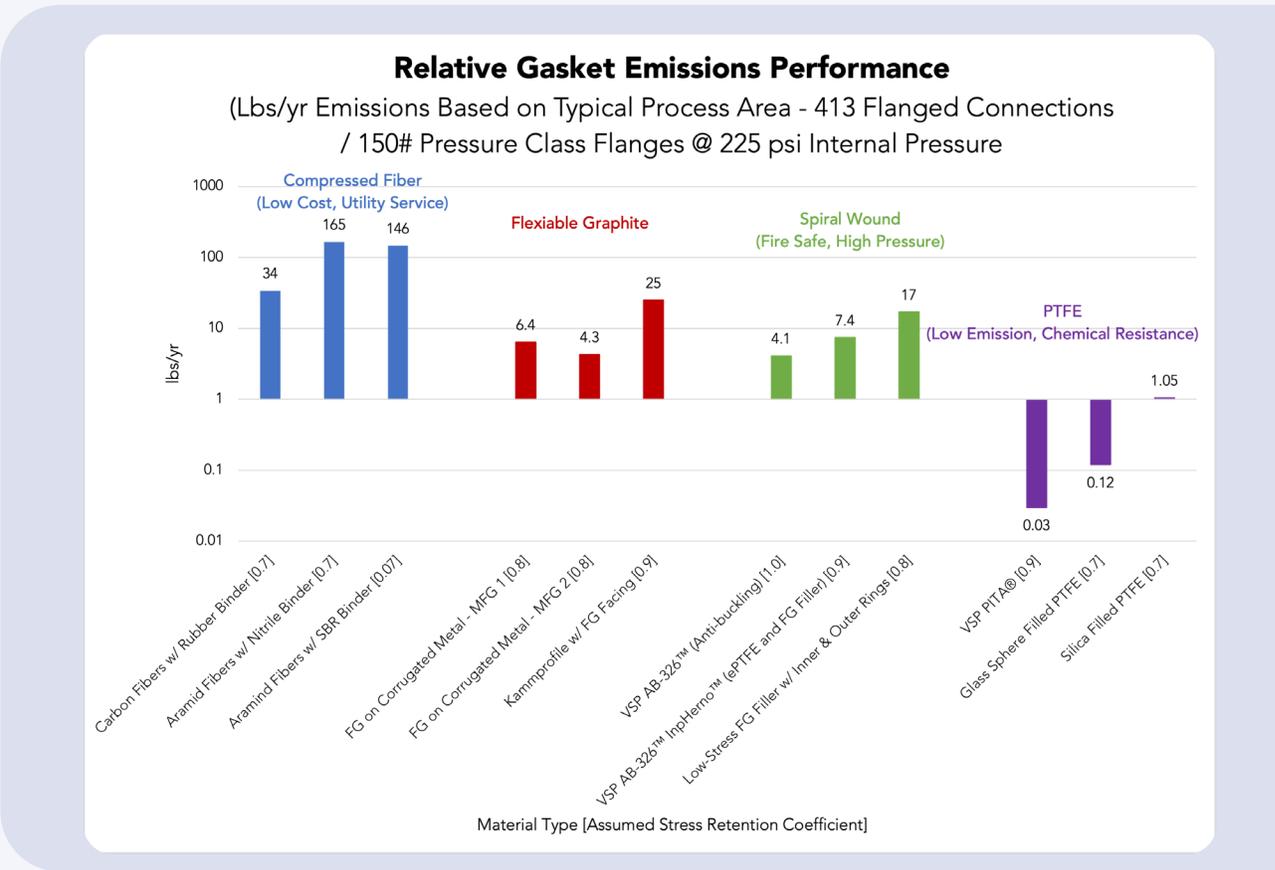
The LEC provides an accurate alternative (typically much lower) to published emission factors often used in fugitive emissions estimating/reporting (e.g., annual TRI reports).

How it Works

- ▶ Accounts for the number of connectors, type of connectors, NPS, operating pressure, torque, and operational time for specific plant or process areas
- ▶ Uses ASME/Pressure Vessel Research Council empirical flange design equations with specific leakage (tightness) based gasket coefficients determined through standardized procedures

What it Provides

- ▶ Relative gasket emissions performance
- ▶ Designed to work in conjunction with a defined fluid-sealing process management program (Ecomap) at the site or process unit level, to manage all variables to ensure replication of input/design conditions



PROVEN RESULTS

Our time-proven process, in conjunction with all stakeholders' commitment, results in unmatched success. VSP works with clients to ensure that the right sealing element is specified and installed correctly every time.

We supply material selection tools and client-focused training to ensure the right sealing element is correctly chosen and installed.

On Site Multi-Discipline Training



Material/Installation Guides

Gasket Sample	Typical Applications	Name / Trade Name	Service Sector / Conditions	Pressure/Temperature
	General purpose, low to high pressure, low to high temperature, low to high velocity, low to high vibration.	Red Rubber	Air, Water	150 °F
	High pressure, low to high temperature, low to high velocity, low to high vibration.	Vegetable Fiber	Water, Air, Oils	300 °F
	High pressure, low to high temperature, low to high velocity, low to high vibration.	Nylon Reinforced Neoprene	Oils, Sulphuric Acids	300 °F
	High pressure, low to high temperature, low to high velocity, low to high vibration.	Graphite Lead Gasket™ 3750	Oils	300 °F
	High pressure, low to high temperature, low to high velocity, low to high vibration.	Phenolic Gasket	Air, Condensates, Water, Oils	300 °F
	High pressure, low to high temperature, low to high velocity, low to high vibration.	VITON® B	Oils, Solvents, Acids	300 °F
	High pressure, low to high temperature, low to high velocity, low to high vibration.	Harris 101 F8 Joint Gasket	Steam, Condensates, Air, Water, Oils, Solvents, Acids	300 °F
	High pressure, low to high temperature, low to high velocity, low to high vibration.	Harris 101 D3 Expanded PTFE Sheet	Steam, Condensates, Air, Water, Oils, Solvents, Acids	300 °F
	High pressure, low to high temperature, low to high velocity, low to high vibration.	Hochwachtel Flexible Graphite	Steam, Condensates, Air, Water, Oils	600 °F
	High pressure, low to high temperature, low to high velocity, low to high vibration.	316 FCL VSP 40 5271	Steam, Condensates, Air, Water, Oils, Solvents	1000 °F

VSP Technologies | Flange Assembly Procedure

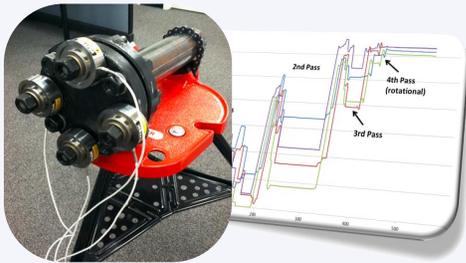
- Lubricate bolt threads and nut faces and tighten all nuts finger tight.
- Select the Target Assembly Torque for the flange type/metalurgy and operating temperature.
- Torque/tighten in a star pattern sequence as indicated below in (5) successive (increasing) increments to the Target Assembly Torque.
- After the 5th pass, continue tightening the bolts in a circular pattern at the Target Assembly Torque until no further nut movement occurs.

Fastener Markings

High Strength	Intermediate Strength	Low Strength

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Latest Training Tools & Techniques



Gasket Material Selection Specific to Your Site

Pocket Flange Assembly Guide

References:

- Bausman, A.R., and Waterland, A.F., 2013 "Practical Sealing for Common Gasket Materials and Construction Types" ASME Pressure Vessels and Piping Conference, PVP2013-97432, Paris, France.
- Rice, D.A., and Waterland, A.F., 2014 "Environmental Considerations for Gasket Selection and the Development of an Emissions Calculator for Gasket Materials" ASME & Piping Conference, PVP2014-28024, Anaheim, CA, USA.

VSP Technologies & Sustainability

VSP is engaged in ESG best practices for environmental sustainability, social and governance factors. We follow six sigma based processes for industrial applications, bulk transportation, and end user safety. We are backed by the strength of a multinational distribution network, providing industrial products and services, that provide customers engineered fluid sealing solutions.