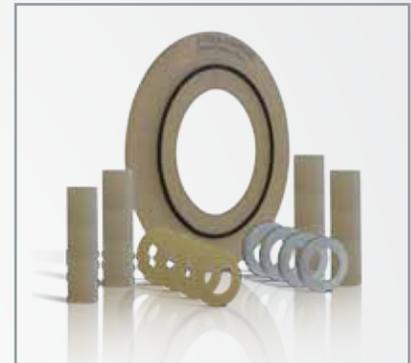


INNOVATIVE ENGINEERING FOR CORROSION PROTECTION

LineBacker® isolation kits utilize a patented rectangular sealing element, referred to as a “quad” ring, in combination with a unique groove design to effectively seal and isolate flanges of all types. With the unique “quad” ring design, elastic memory is provided for elastomers not normally associated with this characteristic. Materials such as PTFE, Kalrez® and Aflas® may be used as sealing elements which dramatically increase the options available for matching isolation kit materials to service and environmental conditions. LineBacker isolation kits are available in a wide variety of retainer and sealing element combinations for matching gaskets to service and environmental conditions. This greater variety of materials also provides excellent temperature and chemical range compatibility. LineBacker® isolation kits are self energizing with theoretical near zero “m” and “y” factors resulting in effecting a positive seal without excessive bolt loads required with flat gaskets. Refer to chart for LineBacker® isolation kit temperature range and material compatibilities.



SIZES

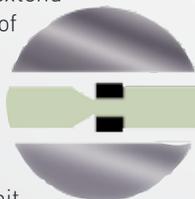
- » All standard ANSI and AWWA flange sizes from 1/2” and above
- » Custom odd sizes and shapes

PRESSURE RATINGS

- » Rated up to ANSI 900#.
- » Pressure from hard vacuum to 2,225 psi

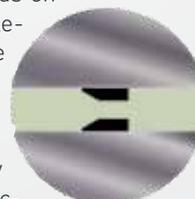
BEFORE TIGHTENING

The flange faces come in contact with the sealing elements, which extend slightly above the surface of the retainer. As the flange is tightened the sealing elements are compressed and move sideways into the inclined portion of the groove, developing a high unit pressure against the flange faces.



AFTER TIGHTENING

The flange faces have come into firm contact with the retainer, thus encapsulating the sealing elements within grooves. At the same time, the unique LineBacker seal configuration provides elastic memory for elastomers not normally associated with this characteristic resulting in a simple flat gasket with extremely high loading and self energizing characteristics without adverse cold flow problems.



LineBacker® Flange Isolation Kits

LINEBACKER® USED IN OLYMPIC FLAME TOWER

The traditional "lighting of the torch" concluded a two-hour opening ceremony celebrating the start of the 2002 Winter Olympic Games in Salt Lake City, Utah. While the identity of the "individual" who would light the flame had been kept a closely guarded secret, the crowd warmly greeted America's gold medal winning ice hockey team from 1980 with chants of "U-S-A" as they lit the flame. The Olympic torch, designed and built by Wet Design, included 2-inch and 4-inch diameter 150 ANSI LineBacker® isolation kit. Chosen for their unmatched sealing reliability, LineBacker® isolation kits were an integral part of a system that fueled an Olympic flame that was to burn brightly throughout the 2002 games.



CUSTOM ISOLATION KITS

Custom isolation kits may be manufactured for flanges from ½" diameter and up. For added flexibility and to accommodate a wide variety of flange types, sealing elements may be positioned anywhere between the I.D. and the bolt circle of the gasket. In addition, GPT has designed and installed large diameter sealing kits with two sealing elements to provide maximum protection and reliability.

Custom shaped isolation kits may be manufactured to precise customer specifications for sealing mating surfaces of any configuration.



SEAL ELEMENT TEMPERATURE LIMITS

Elastomer	Minimum Temperature (°C/°F)	Maximum Temperature (°C/°F)
Nitrile	-54/-65	121/250
Neoprene	-40/-40	79/175
EPDM	-54/65	149/300
Viton	-29/-20	177/350
PTFE	Cryogenic	232/450

GPT LineBacker® Ordering Guide/Worksheet

Quantity	Nominal Pipe Size	ANSI Class	Gasket Type	Gasket Style	For LineBacker® Sealing Gaskets		Washers	Washer Material	Sleeve	Gasket I.D. Flange	Type
Specify Below	Specify Below	150# 300# 400# 600# 900#	E = With Hole Bolts F = Ring (No Bolt Holes)	LB = LineBacker® NP = Rubber Faced Phenolic PP = Plain Phenolic	<u>Retainer</u> Phenolic G-10 G-11	<u>Seal Element</u> Neoprene Nitrile Viton EPDM Teflon (LB only)	SW - Single Washer DW = Double Washer	1 PC = 1 Piece Acetal G-10 G-11	Mylar Nomex G-10	Specify Below	W = Weld Neck S = Slip On R = RTJ O = Other Denote Specs. & Table

Quantity	Nominal Pipe Size	ANSI Class	Gasket Type	Gasket Style	For LineBacker® Sealing Gaskets		Washers	Washer Material	Sleeve	Gasket I.D. Flange	Type
_____	_____	_____	_____	_____	<u>Retainer</u>	<u>Seal Element</u>	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____

FOR LINEBACKER® ISOLATION KITS OVER 24' IN ADDITION TO THE ABOVE PLEASE SPECIFY:

Flange Facing (Raised, RTJ...etc)	_____	Nominal Bolt Diameter (Threads/Inch)	_____
Flange I.D.	_____	Sleeve Length	_____
Flange O.D.	_____	Pipe I.D.	_____
Flange Thickness	_____	Steel Sleeve I.D. (For Concrete Pipe)	_____
Number of Studs/Bolts	_____	Product in Line	_____
Stud/Bolt Diameter	_____	AWWA Class & Table (Or other similar std.)	_____
Stud/Bolt Hole Diameter	_____	Internal Lining	_____
Stud/Bolt Circle Diameter	_____		

NOTE: Caution! Bolts with smooth shank portions may not fit within sleeves. Verify prior to ordering.
For bolt torque information please go to; www.gptindustries.com

LINEBACKER® TYPICAL PHYSICAL PROPERTIES

ASTM	Test Method	G-3 Hi-Temp Phenolic	G10 Epoxy/Glass	G-11 Epoxy/Glass
D149	Dielectric Strength Volts/Mil (Short Time)	550	550	550
D695	Compressive Strength (psi)	50,000	50,000	50,000+
D229	Water Absorbtion (%)	0.7	0.10	0.10
D257	Insulation Resistance Meg/Ohms	46,000	200,000	200,000
D790	Flexural Strength psi	60,000	60,000	75,000+
D785	Hardness Rockwell "M"	115	115	115
D256	IZOD Impact Strength Ft-Lbs/In.	12.0	14.0	12.0
D638	Tensile Strength psi	42,000	45,000	43,000
D732	Shear Strength psi	18,000	22,000	22,000
	Temperature Range °C	-65° - 250°F -54 - 121°C	Cryogenic - 302°F Cryogenic - 150°C	Cryogenic - 392°F Cryogenic - 200°C



MANUFACTURING LOCATIONS

LineBacker isolation kits are manufactured in Wheat Ridge, Colorado and St. Neots in the UK. Both facilities utilize the industry's most technologically advanced manufacturing equipment and finest glass reinforced epoxy laminates along with premium elastomers to become the industry's leader in isolating kits. GPT prides itself on highly innovative, engineered products that can only be developed from the best raw materials. GPT produces innovative solutions that enhance the integrity of pipeline systems today to meet the demands of tomorrow. GPT also offers our application engineering services to optimize product selection, advise and train installation best practices, supervise installations and design isolation systems specifically for your application.



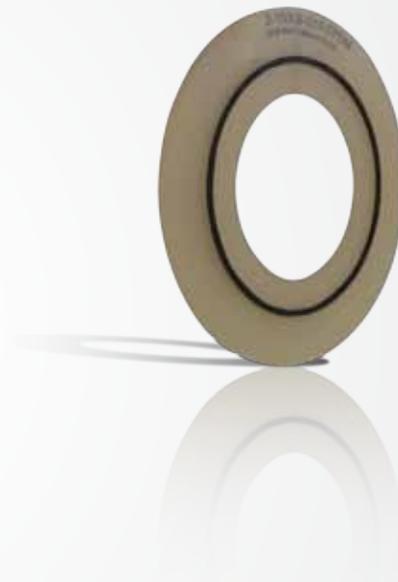
GPT Wheat Ridge, Colorado



GPT St. Neots, UK

LINEBACKER FLANGE ISOLATION KIT

- » Eliminates flange leaks
- » Guards against blowouts
- » Protects against hostile environments
- » Usable with any type of flange
- » Matches gasket materials to service conditions
- » Lowest possible clamp and compressive load
- » Increases gasket life
- » Insulating version is both a positive seal and a superior insulator
- » Available in all standard ANSI and API flange sizes from 1/2" to 144"+
- » Available in custom or odd sizes and shapes





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