APPLICATION
Flange insulation kits for metallic pipelines are available for all flange sizes, types, pressure ratings and materials. Flange insulation kits are commonly installed at each end of a pipeline to electrically isolate the pipe for other buried foreign metallic structures and plant grounding systems therefore limiting the amount of cathodic protection current required to protect the pipeline.

FLANGE INSULATION KIT DATA

TYPE "E" GASKETS
Have the same outside diameter as the flanges, and are made with precision-located bolt holes. They are easy to centre and will prevent foreign material from becoming lodged between the flange faces and "shorting out" the flange insulation.
Type "E" gaskets are available in a wide variety of materials.

TYPE "F" GASKETS
Are made to fit within the bolt hole circle of the flange faces. The outside diameter of the gasket is slightly larger than the inside diameter of the bolt hole circle. They are available in a wide variety of materials.
TYPICAL SPECIFICATIONS

**Standard Specification Range**

**Flange Isolation Kit Specification**

- Materials for flange isolation kits on pipes containing water, aqueous fluids or natural gas (up to 221°F, 105°C) shall consist of the following components:

- **Isolating and Sealing Gasket**: One full faced isolating and sealing gasket, LineBacker Type “E”, 1/8” thick, phenolic retainer containing a precision tapered groove to accommodate the controlled compression of a nitrile quad-ring sealing element. Sealing element placement shall accommodate either flat, raised or RTJ face flanges. The quad-ring seal shall be pressure energized. The phenolic retainer shall have a 500 volts/mil dielectric strength and a minimum 25,000 psi compressive strength. The full faced flange isolating gasket shall be 1/8” less in I.D. than the I.D. of the flange in which it is installed.

- **Full Length Bolt Isolating Sleeves**: One full length Mylar sleeve (extending half way into both steel washers) for each flange bolt. The Mylar shall be a 1/32” thick tube with a 4000 volts/mil dielectric strength and water absorption of 0.8% or less.

- **Washers**: Two, 1/8” thick, glass clad phenolic isolating washers for each bolt. Their compressive strength shall be 33,000 psi, dielectric strength 500 volts/mil and water absorption 1.6% or less. Two, 1/8” thick steel washers for each bolt. The I.D. of all washers shall fit over the isolating sleeve and both the steel and isolating washers shall have the same I.D. and O.D.

**TYPE “D” GASKETS**

- Are made specifically to fit into the ring groove of RTJ flanges. They are available in reinforced phenolic and other materials.

**INSULATING SLEEVES AND WASHERS**

- Are available in complete kits, with or without a gasket. Sleeves and washer are available as separate parts or as a one-piece moulded unit. Sleeves and washers are enclosed in a strong polyethylene bag to eliminate any possibility of loss.

TYPE “D” GASKETS

- Are made specifically to fit into the ring groove of RTJ flanges. They are available in reinforced phenolic and other materials.

INSULATING SLEEVES AND WASHERS

- Are available in complete kits, with or without a gasket. Sleeves and washer are available as separate parts or as a one-piece moulded unit. Sleeves and washers are enclosed in a strong polyethylene bag to eliminate any possibility of loss.
High Temperature Specification Range

Flange Isolation Kit Specification: Materials for flange isolation kits on pipes containing natural gas, oil and aqueous fluids (up to 280°F, 138°C) shall consist of the following components:

Isolating and Sealing Gasket: One full faced isolating and sealing gasket, LineBacker Type “E”, 1/8” thick, G-10 retainer containing a precision tapered groove to accommodate the controlled compression of a Teflon (or Viton) quad-ring sealing element. Sealing element placement shall accommodate either flat, raised face or RTJ flanges. The quad-ring seal shall be pressure energized. The G-10 retainer shall have a 550 volts/mil dielectric strength and a minimum 50,000 psi compressive strength. The full faced flange isolating gasket shall be 1/8” less in I.D. than the I.D. of the flange in which it is installed.

Full Length Bolt Isolating Sleeves: One full length G-10 sleeve (extending half way into both steel washers) for each flange bolt. The G-10 shall be a 1/32 inch thick tube with a 400 volts/mil dielectric strength and water absorption of 0.10% or less.

Washers: Two, 1/8” thick, G-10 isolating washers for each bolt. Their compressive strength shall be 50,000 psi, dielectric strength 550 volts/mil and water absorption 0.10% or less. Two, 1/8” thick zinc plated, hot rolled steel washers for each bolt. The I.D. of all washers shall fit over the isolating sleeve and both the steel and isolating washers shall have a same I.D. and O.D.

Common LineBacker & Gasket Seal Laminates/Retainers Physical Properties & Max Temperature Limits
**ASTM** | **Test Method** | **Plain Phenolic** | **Neoprene Faced Phenolic** | **G-3 Hi-Temp Phenolic** | (***) G-7 Silicon Glass | **G-10 Epoxy Glass** | **G-11 Epoxy Glass**
---|---|---|---|---|---|---|---
D149 | Dielectric Strength (Volts/Mil (short time)) | 500 | 500 | 550 | 350-400 | 550 | 550
D695 | Compressive Strength (psi) | 25,000 | 25,000 | 50,000 | 40,000 | 50,000 | 50,000+
D229 | Water Absorption (%) | 1.60 | 1.6 | 0.70 | 0.07 | 0.10 | 0.10
D257 | Insulation Resistance (MΩ) | 40,000 | 40,000 | 48,000 | 2,500 | 200,000 | 200,000+
D785 | Flexural Strength (psi) | 22,500 | 22,500 | 60,000 | 27,000 | 60,000 | 75,000+
D790 | Hardness Rockwell “M” | 85 | 85 | 115 | 105 | 115 | 115
D256 | Izod Impact Strength (ft-lbs/inch) | 1.2 | 1.2 | 12.0 | 8.0 | 14.0 | 12.0
D638 | Tensile Strength (psi) | 20,000 | 20,000 | 42,000 | 25,000 | 45,000 | 43,000
D732 | Shear Strength (psi) | 10,000 | 10,000 | 18,000 | 20,000 | 22,000 | 22,000

| Temperature Range (°F) | -65 to +220 | -65 to +175 | -65 to +392 | Cryogenic to +450 | Cryogenic to +280 | Cryogenic to +350 |
| Temperature Range (°C) | -54 to +104 | -54 to +79 | -54 to +200 | Cryogenic to +232 | Cryogenic to +138 | Cryogenic to +177 |

(*) G-7 Material should not be used with Hydrocarbons, not even in trace amounts

For every enquiry or Order please quote:

- Flange Pressure Class and Standard (ANSI, BS, DIN)
- Nominal Pipe Diameter
- Type E, F or D Flange Kit
- Type of Insulating Material required for Central Gasket & Sleeves
- Type of Product being carried by Pipeline