



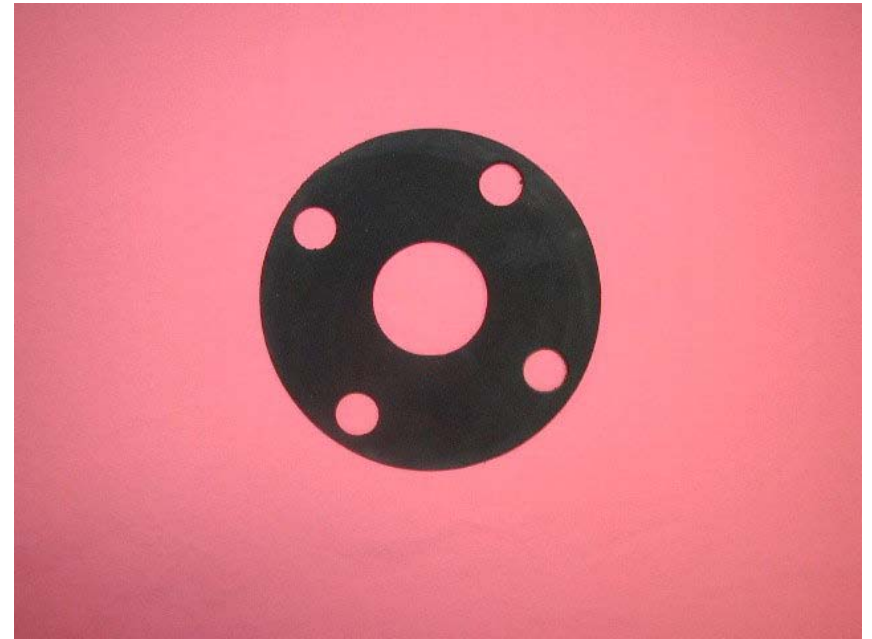
*FLANGE INSULATION
FOR
CATHODIC PROTECTION*

Flange Insulation

- Flange insulation kits are the most widely used form of controlling losses due to corrosion. They can be used to control stray electric currents in piping at oil, gas, water, refinery and chemical plants and increase the effectiveness of cathodic protection systems and confine or eliminate electrolytic corrosion.
- Most common components are a gasket, sleeves for bolt protection, and washers for nut protection. The variety of component materials is dependent upon application.

Type "E" Full Face

- Type "E" gaskets have the same outside diameter as the flange offering full protection. This will prevent the collection of foreign matter between the flange faces and insures complete cathodic isolation. A wide variety of materials are available to suit the requirements.



Type "F" Raised Face

- Type "F" gaskets are made to fit inside the bolt circle and cover the raised face portion. It is recommended that a dirt guard be used to prevent foreign matter from shorting out the flanges. The flanges can also be wrapped. A wide variety of materials are available to suit the requirements.



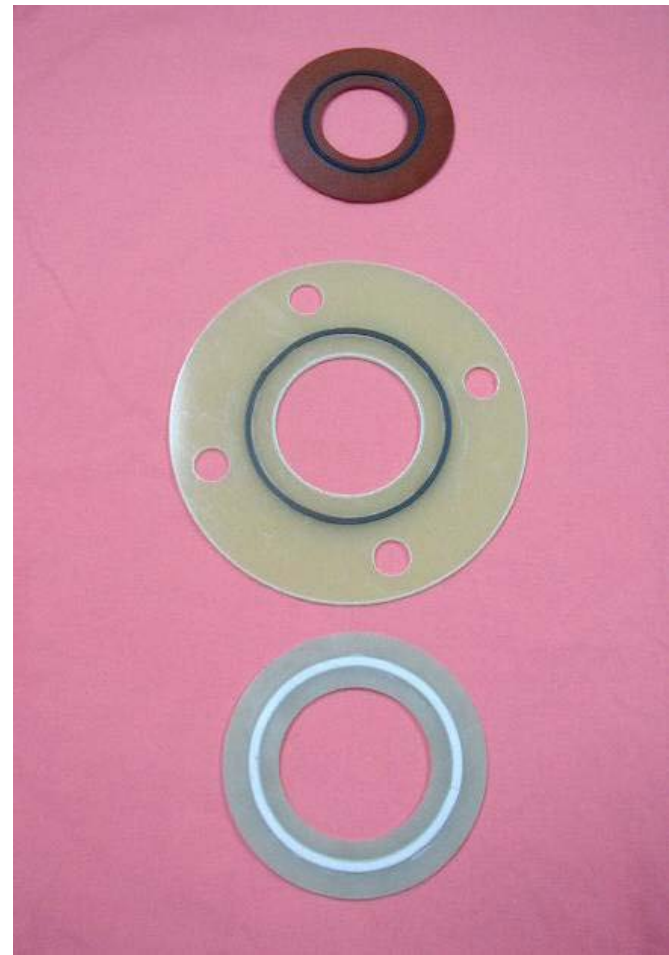
Type "D" Ring Type Joint

- Type "D" or RTJ gaskets are made to fit the ring groove on ring type joint flanges.
- Usually manufactured from phenolic based materials, however customer requirements can be met.
- It is recommended that the flanges be wrapped or a dirt guard be used to prevent foreign material from shorting out the flanges.



Insul-Seal (O-Ring Type)

- Insul-Seal gaskets utilize the resilience of an “O” ring to maintain constant contact with the flange face. Both the gasket and o-ring are available in a variety of materials as well as both “E” and “F” styles to suit the requirement.



Gasket Specifications

- **Gaskets** — *Type E and F can be manufactured from:*
 - Phenolic (plain and neoprene faced)
 - NEMA Grade GRE (glass reinforced epoxy)
 - Garlock Non-Asbestos sheet gasket materials
 - Garlock Gylon (reinforced PTFE)
 - INSUL-SEAL gaskets contain an O-ring (customer specified)
 - ***Unique materials for special applications are available at customers request***

Sleeve & Washer Materials

- Phenolic
- Mylar
- Minlon (one piece sleeve & washer)
- NEMA GRE (glass reinforced epoxy)
- Garlock non-asbestos
- Garlock Gylon
- ***Special applications at customer request***



Recommended Installation Procedure

- Verify the insulation kit contains the materials specified and the contents are not damaged
- Clean and inspect pipe flange faces.
- Install gasket - insure proper flange alignment
- Insert insulation sleeves into the bolt holes
- Insert the bolt with insulating washers against the flange followed by the steel washers and nuts
- Tighten bolts in a cross (or star) pattern with 30% of recommended torque followed by 60% followed by 100%
- Retorque fasteners exposed to aggressive thermal cycling
- *Proper torque values are available upon request*



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