

**BAC**<sup>®</sup>

**CORROSION CONTROL**



**INSULATING FLANGE KITS**  
***PIPES PLUS***

# FLANGE INSULATING MATERIALS

## Over 30 years of Engineered Performance

Insulation Flange Kits are an ideal solution where discrete electrical sections of pipeline are required for the control and regulation of cathodic protection and electrolytic current flow.

- Economical
- Easily Installed
- Long Lasting
- Variety of materials for different applications

### Standard Flange Insulation Kit

Unless otherwise specified the standard or full kit consists of the following:

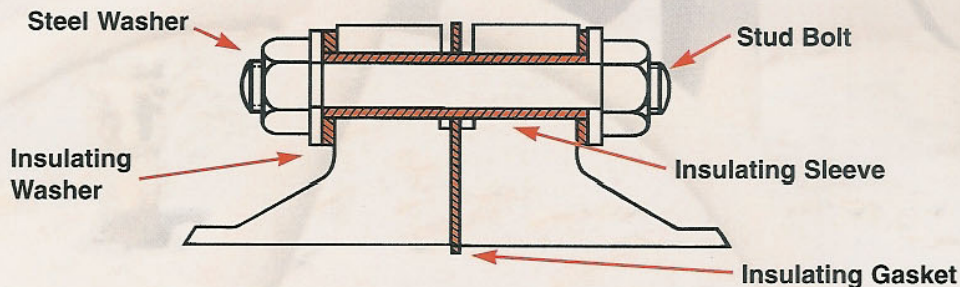
- Gasket
  - Insulating Sleeves
  - Insulating Washers (2)
  - Zinc Plated Steel Washers (2)
- 
- UNC Stud Bolts }When ordering
  - UNC Hex. Nuts (2) }full kits only

### Ordering

When ordering Flange Insulation Kits please specify:

- Quantity
- Pipe Size
- Pressure Rating
- Gasket Type
- Gasket material
- Half Kit - Gasket, Sleeves and Washers only, or
- Full Kit - Gasket, Sleeves, Washers and Stud Bolts c/w nuts

**NOTE:** In order to ensure sufficient tightness, all gaskets require the use of high tensile steel bolts.



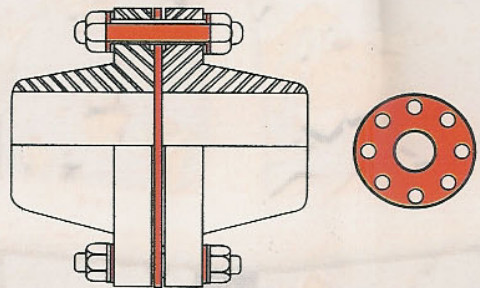
Typical Assembly for Type 'E' Flanges

## GASKET TYPES

### Gasket - Full Face Type "E"

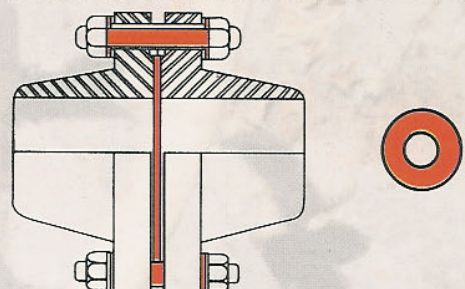
The Type "E" gasket has the same outside diameter as the flange in which they will be used. Slightly larger ODs are available at no extra charge if desired. Each gasket has precision located bolt holes and is available in any of the materials described below. The principal advantages to types "E" gaskets are:

1. Positive assurance that conducting material cannot get between the portion of the flanges outside the raised face.
2. Ease of centring the gasket with flange ID



### Gaskets - Raised Face Type "F"

The Type "F" gasket is made to fit the raised face portion of flanges. The OD is made to fit within the ID of the bolt hole circle. They are available in any of the materials described below. To prevent shorts in flanges caused by conductive material getting between the flanges outside the gasket, the annulus should be filled with a suitable sealant.



## Available Gasket Materials

### Neoprene Faced Phenolic - N

Neoprene faced phenolic gaskets have long been used as a standard insulating gasket in the gas and oil industries because the soft neoprene rubber provides good sealing qualities. In these gaskets, neoprene sheets are factory bonded to both sides of a laminate phenolic sheet to give good sealing qualities and high electrical resistance.

The temperature limitation of these gaskets is approximately +90°C (194°F)

### Plain Phenolic - P

Plain phenolic gaskets are manufactured from laminated phenolic material, which provide insulation between the flange faces. It is difficult to obtain an effective seal unless standard 1/16" service gaskets are used with them. They are less expensive than faced gaskets and can be used in temperatures up to + 120°C (248°F).

### Klingsil

A top quality material for general use. Composed of compressed fibre jointing based on glass fibre with NBR binder. Ideally suited for use with air, steam, oils & fuels, gases (including oxygen) and potable water applications. Maximum operating temperature 430°C, maximum steam temperature and 260°C maximum insert liquid temperature.

## Insulating Sleeves, Washers and Studding Materials

Unless otherwise specified the following materials are deemed to be standard.

Insulating Sleeves	Spiral Wound Mylar	
	Wall Thickness	0.5mm and 1/32"
	Dielectric Strength	over 50,000 volts/mil
	Operating Temperature	120°C
Insulating Washers	Water Absorption	very low
	Dielectric Strength	500 volts/mil
	Compressive Strength	41,000 psi
	Maximum Operating Temperature	120°C
	Water Absorption	1.0% Max
Steel Washers	High Strength Phenolic Resin	1/8"
	1/2" Bright steel to BS 3410 table 4 designed to sit within spot face of flange.	Zinc Plated
Studbolts	Studbolts (with 2-H Nuts) BS-4882-1973 UNC (Formerly BS 1750) Grade B7	

## Ancillary Materials

External Sealant	BICC R392 compound
	Non-hardening mastic compound which operates between -20°C and +80°C
	Approved for sealing the external annulus of flangers.
Internal Sealant	SILASTIC 732 RTV
	A silicon rubber material for sealing the internal annulus of flanges. Stable from 75°C to 230°C. Bonds direct to metal and synthetic fibres vulcanised on exposure to moisture in air.
Internal Sealant Handgun	Hand Gun for use with SILASTIC 732 RTV tubes.

## Gasket Material Specifications

All materials used in Insulating Gaskets are selected to provide quality products that will assure long term effective sealing and electrical insulating of flanged joints. Several gaskets are made to combinations of materials to take advantage of the best characteristics of each. The following table lists some of the more important characteristics.

Specifications		N* Neoprene Faced Phenolic	P Plain Phenolic	Klingsil C4430	Klingsil C4400
Dielectric Strength - Volts/Mil	ASTM D229	500	500	1520	2400
Electrical Resistance - Megohms (1/8" thick)		-	-	10,000	10,000
Compressive Strength - Lbs/Sq. in.	ASTM D229	42,000	42,000	22,000	22,000
Compressibility - %	ASTM D1147	1.7	1.7	11	8
Flexural Strength - Lbs./Sq. in.	ASTM D229	20,300	20,300	N/A.	N/A.
Impact Strength Izod - Ft Lb./in. of notch	ASTM D732	0.25	0.25	N/A.	N/A.
Rockwell Harness - Scale 'M'	ASTM D229	90	90	N/A.	N/A.
Shear Strength - Lb./Sq. in.	ASTM D229	12,300	12,300	N/A.	N/A.
Tensile Strength - Lb./Sq. in	ASTM D229	12,300	12,300	N/A.	N/A.
Water Absorption - % (1/8" thick)	ASTM D229	1	1	5	5
Recommended Max. - °C temp. for Cont. use		**90	120	250 430	210 400

\* These values apply to the core materials - Neoprene facing for sealing purposes only.

\*\* This value applies to Neoprene material only. Other values based on core material.

THE PROPERTY VALUES SHOWN ARE FOR PRODUCTION QUANTITIES, AND THEY ARE BELIEVED TO BE CONSERVATIVE. NO WARRANTY IS TO BE CONSTRUED. HOWEVER, TESTING SHOULD BE DONE BY THE USER WHERE SPECIFIC OR UNUSUAL APPLICATION ARISE.



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