

# SMITH Gaskets

SMITH INTERNATIONAL GULF SERVICES (M) SDN BHD

## CORROSION CONTROL SYSTEM

Smith Gaskets a division of Smith International Gulf Services excelled in manufacturing of gaskets and sealing products to Oil & Gas industry since past two decades. Over the years Smith Gaskets have enhanced engineering, technical and manufacturing capabilities to develop more new products and services to customers globally.

### Flange Insulation Kits

Flange insulation sets are used in flange application where electrical isolation and galvanic corrosion resistance are required. The kits are used as an insulator between dissimilar metal flanges or to electrically isolate sections of pipe works in a cathodic protection system, preventing the flow of electrostatic charge along the pipelines. They are designed to minimize the effects of electro-chemical corrosion. The insulation kit consist one full length sleeve, two insulating washers and two steel washers for each of the bolts in the flange assembly.



### Type "E" Gaskets

Outside diameter of this type gaskets extend up to the external diameter of the flange. This gasket consists of bolt holes, this helps to automatically align and center the gaskets and gives optimum protection against foreign particles which can short out the flange.

### Type "F" Gaskets

This type of gasket fits within the bolt circle of the flange. External diameter of the gasket extend up to the inside diameter of the bolt hole circle.

### Type "D" Gaskets

This type of gasket is RTJ style however Smith Gasket's "corrosion control system HP" gaskets are best alternative to the RTJ style gaskets.

### MANUFACTURING FACILITIES

**UNITED ARAB EMIRATES**  
Oilfields Supply Centre, B14, Jebel Ali Free Zone  
Dubai, United Arab Emirates  
Tel: +971 4 883 6248 Fax: +971 4 883 9438

[www.smithgaskets.com](http://www.smithgaskets.com)

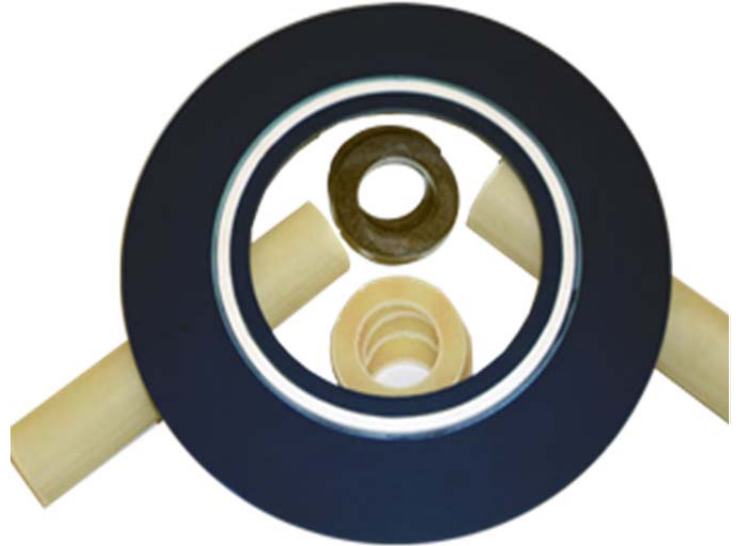
**SAUDI ARABIA**  
Al Hail Street, 2<sup>nd</sup> Industrial City  
Al Khobar 31952, Dammam  
Kingdom of Saudi Arabia  
Tel: +966 3 812 3341 / 812 2175  
Fax: +966 3 812 1998

**MALAYSIA**  
Unit No. H33-H35, Precinct 3  
42920 Port Klang Free Zone  
Selangor Darul Ehsan, Malaysia  
Tel: +603 3101 3245 / 46  
Fax: +603 3101 3243

## CORROSION CONTROL SYSTEM HP

HP insulation gaskets have been specially designed for critical services to withstand corrosive environments. Apart from the excellent sealing characteristics and superior dielectric properties, HP is ideal for general sealing applications. This gasket is suitable for Raised Face, Flat Face and RTJ flanges in all pressure classes.

HP gasket consists of PTFE spring energized face seal fixed to the isolating laminates, which is permanently bonded to the metal gasket core. Due to the enhanced design of PTFE spring energized seal, HP requires less bolt stress to make effective sealing, also the energized action helps to eliminate costly leaks and fugitive emissions.



Inside diameter of the HP gaskets is exactly matching to the flange bore which eliminate turbulent flow and flange face corrosion/washout. This gasket withstands severe critical service condition like vibration, temperature and pressure fluctuations.

### Applications;

- Insulation between dissimilar metal flanges to prevent galvanic corrosion.
- Flange insulation in conjunction with cathodic protection.
- Well head isolation from inter-connected flow lines.
- Mating mismatched RTJ flange to Raised Face flange.
- Eliminate fluid trap corrosion between RTJ flanges where high CO<sub>2</sub>, H<sub>2</sub>S and other aggressive media are present.
- Eliminate turbulence and flow-induced corrosion between RTJ flanges.
- Protect against coating impingement on coated flange face.
- To seal between flanges subjected to vibration.



### HP Insulation Kit Characteristics

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➤ Metal Core

- Gasket core shall be made by solution annealed SS316L Stainless Steel, other material are available upon special order.

➤ Gasket Isolation Retainer

- NEMA LI 1 - Glass Reinforced Epoxy Laminate Material.

Properties	G10	G11
<i>Compressive Strength, PSI</i>	60,000	55,000
<i>Flexural Strength, PSI</i>	66,000	60,000
<i>Tensile Strength, PSI</i>	50,000	50,000
<i>Dielectric Strength, Volts/mil</i>	550 - 600	550
<i>Operating Temperature, °C</i>	Cryogenic to 150	Cryogenic to 180
<i>Water Absorption, %</i>	0.1	0.12
<i>Insulation Resistance, MΩ</i>	200,000	200,000

➤ Seal Material

- Seal elements are specially designed and intended to work as a special barrier through which no contained media or other substance can pass through. Special grooves on the retainer encapsulate the seal and thus hold the seal in place in static. Teflon seal is the standard option which will cover all conditions; helical wounded spring provides energized spring action and special seal groove minimizes creep or cold flow.

➤ Sleeves

- Mylar sleeve is the standard option however GRE and other sleeves can be made available upon request. All sleeves shall be provided with full length, as short length sleeves may not provide the adequate level of electrical insulation protection.  
Mylar is the best choice for the standard application as it has relatively good resistance to crushing, cracking, breaking, moreover it is less expensive than the GRE sleeves. Smith does not recommend Phenolic material to be used due to its unreliable characteristics.

➤ Washers

- GRE washers are the standard option; purpose of the washers is to electrically insulate the nuts from the rest of the flange assembly. Smith offer high quality GRE washers which have more than 60,000 PSI compressive strength and can absorb the flange made up force without fail.

Steel washers are required to prevent the twisting action of the nuts from scaring or gauging the insulating washers. All high quality steel washers shall be supplied with Zinc plating which have high corrosion resistance and mechanical strength. Stainless Steel and PTFE coated Steel washers are available upon request.

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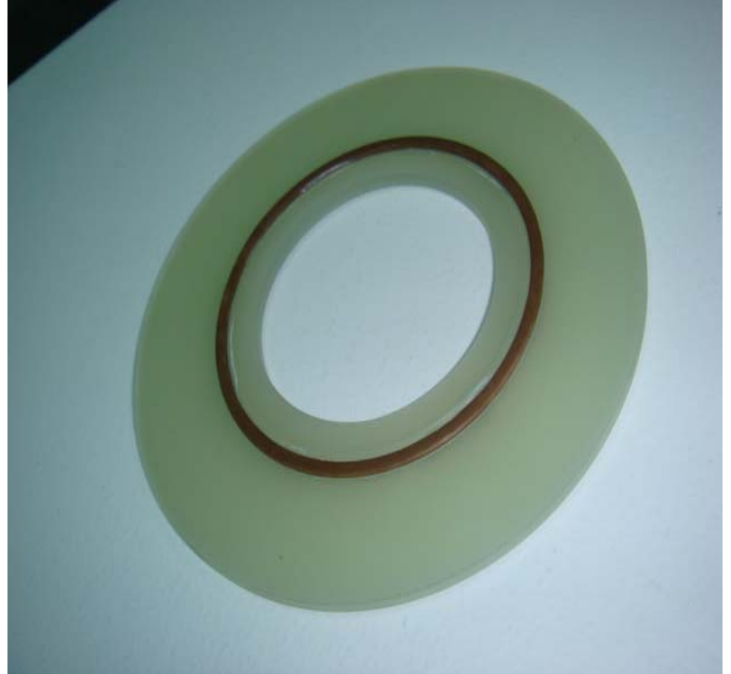
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## CORROSION CONTROL SYSTEM LP

Smith's LP gasket is a non-critical application gasket designed for electrical flange isolation and sealing applications. This type of kit is recommended for use in raised face/flat face flanges rated up to class 300. LP gasket provides excellent isolation and the rectangular sealing element fixed in a special designed groove makes for effective energized sealing and isolation.

LP gasket retainers are based on high quality GRE laminates, which have excellent dielectric strength, very good mechanical properties and sealing characteristics. This LP design can easily replace unreliable, failure prone phenolic based gaskets. These gaskets are available in two models such as Raised Race and Full Face, also available in all flange configurations such as ASME, DIN, JIS, ISO etc.

PTFE is the standard seal option however other seal materials are available on request.



### Advantages of LP gaskets

- Excellent sealing solution for low pressure services.
- Reliable energized seal provides extra sealing.
- GRE gasket retainer provides excellent insulation.
- High strength laminates eliminate the risk of failure due to over torque of the bolts.
- Gasket internal bore extended to match the bore of the flanges to protect the flange face from corrosion and washout.
- Energized seal which is encapsulated in the groove eliminate the cold flow.
- Long life, maintenance free design.
- Easy, quick installation, low seating stress required hence less force on the flange and bolts.

All LP gasket retainers have thickness of 3mm and kit consists of full length Mylar sleeve, GRE washer and Zinc coated Steel washers for each bolt; other material combinations made available upon request.

### Gasket Ordering Guide

- Size
- Class
- Gasket Type – E / F
- Flange Type
- Type of Gasket – HP, LP
- Quantity

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