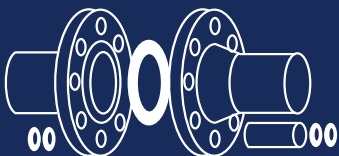


SALMARCON 
We make it seal!

FLANGE INSULATION KIT



TRUSTED TO
DELIVER
INNOVATIVE
SOLUTIONS



www.salmarcon.com

About Salmarcon

Established in 2012, as a private owned company, we since have proved to be a succesful growing story. We are specialist in the manufacturing and supply of high-quality industrial sealing products, fluid control, gaskets, fasteners such as stud bolts, nuts, washers and associated services in Turkey. We are more than 50 employees working together in a 15.000m² active area located in Canakkale.

Expert sealing solutions

With a mix of world class products and know - ledgeable people we quickly attracted big clients. Ever since we have proven worthy of the trust, and we have turned into one of the top players of the Turkish gasket industry as well as having entered European supply chains.

Certified quality

Our products deliver proven user safety.

- » Our products are amongst the most approved and certified products within the industry
- » We deliver certified and trusted products worldwide
- » EN ISO 9001:2015, ISO 14001:2015 as well as ISO 45001:2018 certified
- » Best in market certificates & approvals for all our material.

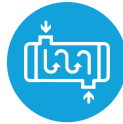
Our solutions for all applications



Pipes & Flanges



Scrubbers



Heat Exchangers



Food Reactors



Pumps



Compressors



Gas heaters



Steam



Oil + Gas



Chemical



Mining



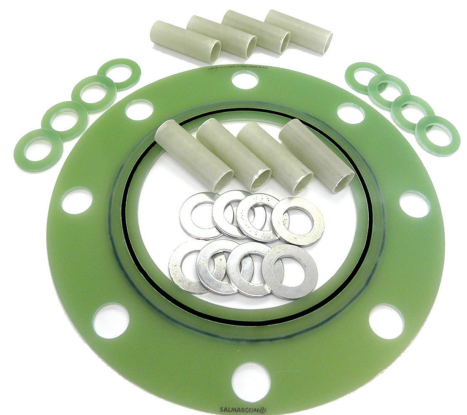
Petro chemical

FLANGE INSULATION KIT

SALMARCON Flange Insulation Kits are designed to ensure electric insulation and to combat the effects of corrosion often found in flanged pipe systems. By eliminating metal-to-metal contact, static current is halted to prevent corrosion and to aid in the cathodic protection of the piping system.

The kits can be used to control stray electric currents in piping at oil, gas, water, refinery and chemical plants in order to increase the effectiveness of cathodic protection systems.

Experience has shown that cathodic protection, together with high grade passive corrosion protection from the application of a coating on the pipeline, provides a most efficient and economical solution.

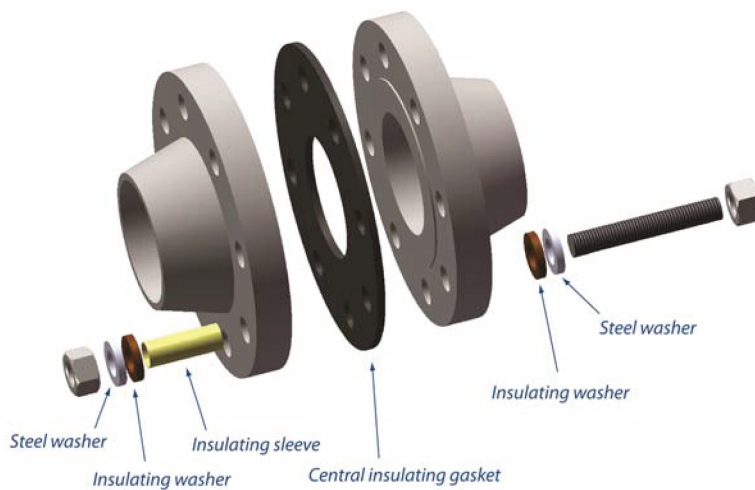


KIT CONTENTS

Insulating sets comprise of a phenolic laminate or neoprene faced phenolic laminate gasket (TYPE E and TYPE F) which is located between the flange sealing faces, phenolic laminate bolt sleeves, two insulating washers per bolt for maximum protection and two plated mild steel washers per bolt. Stainless steel washers can be supplied upon request.

Insulating sets are essentially used for pipeline flange corrosion protection, where a seal is required between dissimilar flange materials. The use of dissimilar metallic flanges with a conductive gasket material accompanied with a suitable electrolyte may set up a galvanic cell which will corrode the anodic metal. Insulating sets are also used to electrically isolate flange joints, preventing the flow of electrostatic charge along pipelines.

Typical Flange Insulation Set Components



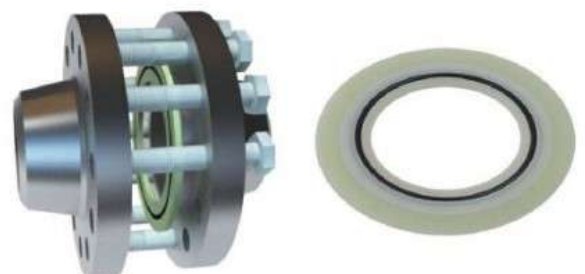
Standard Insulating Gasket & Sleeve & Washer Materials in the Set are:

- G10+PTFE Insulating Gasket
- Mylar or G10 Sleeves
- G10 Insulation Washers
- Stainless Steel Metal Washers
- Others on request

TYPE F - RING GASKET (#RF)

Utilises a RF gasket which centrally locates within the bolts. Typically used on oil and hydrocarbons where flange insulation is a requirement. Manufactured from materials with high dielectric strength to ensure minimum electrical contact between flanges.

- 1/8" thick zinc plated steel washer
- 1/8" thick G10 insulating washer
- G10 insulating sleeves
- Inner Bolt Circle (#RF) Insulating Gasket
- 1/8" thick G10 insulating washer
- 1/8" thick zinc- plated steel washer



TYPE E - FULL FACE GASKET (#FF)

Suitable for flat and raised face flanges. This style minimizes the ingress of conductive foreign matter and reduces the risk of bridging. Typically used on oil and hydrocarbons where flange insulation is a requirement. Manufactured from materials with high dielectric strength to ensure minimum electrical contact between flanges.

- 1/8" thick zinc plated steel washer
- 1/8" thick G10 insulating washers
- G10 insulating sleeves
- Full Face Insulating Gasket
- 1/8" thick G10 insulating washer
- 1/8" thick zinc plated steel washer



TYPE D - RING TYPE JOINT GASKET

Type D insulation gaskets use the same basic materials as the standard ins designed for RTJ flanges. The gasket is manufactured from reinforced phenol have an oval cross-section and are suitable for low pressure up to class 600

Care must be taken during installation of this gasket so that it is not overstr



Service Recommendations

The choice of insulation gasket for a given duty is dependent on the application conditions under which they will be operating. In addition to the temperature limitations, selection of the gasket must consider the intended flange pressure class. The table below presents SALMARCON recommendations for safe sealing of ANSI flanges requiring insulating properties. The recommendations are based on both product knowledge and feedback from the field. For applications with specific service conditions, please refer to SALMARCON for a recommendation.

Gasket recommendations for ANSI B16.5 Raised Face Flange Class

✓ -recommended ; x-not recommended

| Pressure Class Rating ANSI B16.5 Raised Face | | | | | | |
|--|-----|-----|-----|-----|------|------|
| Gasket Type | 150 | 300 | 600 | 900 | 1500 | 2500 |
| Neoprene Faced Phenolic | ✓ | ✓* | x | x | x | x |
| Topchem 2003 | ✓ | ✓ | x | x | x | x |
| Klingsil C-4430 | ✓ | ✓ | ✓* | x | x | x |
| Topchem 2000 | ✓ | ✓ | ✓* | x | x | x |
| G10+PTFE | ✓ | ✓ | ✓ | ✓* | ✓* | x |
| HPS-High Pressure Spring Energised PTFE (SS316 Core) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| High Temperature Insulating Gasket SS316 Core+Salmica Flex (up to 550 C) | ✓ | ✓* | x | x | x | x |

*subject to a technical evaluation-please contact SALMARCON

The above table is applicable to Raised Face Flanges. For ANSI B16.5 & API 6A Ring Joint Flanges (RTJ), insulating oval shape Type D gaskets are available but are not recommended due to their susceptibility to crack under load especially in high pressure applications. Salmarcon would recommend to use other styles as per above table for high pressure (600# and above) RTJ flanges.

LOW TEMPERATURE SERVICE

Some applications require the use of insulating gaskets at low temperatures. Insulation kits with elastomeric materials should not be used below -40°C. For lower temperatures with low pressures, we recommend KLINGER Topchem 2000 or Topchem 2003 as the main gasket. For higher pressure applications, HPS-High Pressure Spring Energized PTFE (Teflon) seals are recommended.

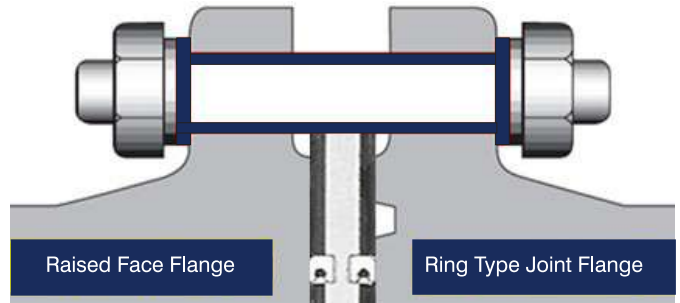
TYPICAL APPLICATIONS

Offshore installations, sea water environments, hydrocarbon service, chemical installations, oil refining pipelines requiring galvanic corrosion protection and electrical insulation.

Sealing raised face to Ring Joint flanges

The positioning of the sealing elements of the HPS (High Pressure Seal Type) gasket are designed to fit Raised Face, Flat Face and Ring Type Joint flanges.

Because of this design we are able to replace the old design of Phenolic RTJ gaskets commonly designated Type "D-Ring Joint Gasket" which were limited in their ability to take high stresses or excessive bolt loads which often resulted in gasket fracture, damage or failure.



Because the HPS uses pressure-activated sealing elements which are designed to sit inside the ring groove on RTJ flanges it has the additional advantage of allowing the HPS to seal mismatched RTJ to raised face or flat faced flanges. This can be of great benefit to the customer when replacing flanges or valves using current stock inventory that may have a different flange face than the mating flanges in situ.

The Flange Insulation Kit Components.

The gasket set comprises the following as listed below:

Insulation Kit Contents:

| | |
|---------------------|---|
| Insulating facing: | G-10 glass reinforced epoxy resin standard. G11 also available on request. |
| Seal: | Spring energised PTFE (Viton also available) |
| Core: | Stainless steel 316 |
| Standard Thickness: | 3.0 mm. |
| Insulating Washers: | G-10 glass reinforced epoxy resin (other materials are available) 3.0 mm thickness 2 washers per bolt |
| Steel Washers: | Zinc-plated steel, 3.0 mm thickness (stainless steel washers also available) 2 washers per bolt |
| Insulating Sleeves: | G-10 glass reinforced epoxy resin. (Mylar and G-11 also available) 1 insulating sleeve per bolt |

Insulation Kit Properties

| | | |
|-----------------------|---|---|
| Material type: | G-10 Glass-reinforced epoxy resin | G-11 High temperature resin |
| Compressive strength: | 50,000psi - minimum | 50,000psi - minimum |
| Dielectric strength: | 24.1-31.5 kV/mm | 24.0 kV/mm |
| Maximum temp: | 150°C | 200°C |
| Water absorption: | 0.1% - maximum | 0.1% - maximum |
| Flexural strength: | 65,000psi | 57,700psi |
| Tensile strength: | 50,000psi | 41,000psi |
| Temperature range: | - 130°C to 150°C (limited by gasket material) | - 46°C to 200°C (limited by gasket material) |
| Seal: | Spring-energized PTFE (Viton rubber also available) | |

Physical Properties

| Material Type | Component | Dielectric Strength (Kv/mm) | Water Absorption (%) | Maximum Temperature (°C) |
|---------------------------|------------------------|-----------------------------|----------------------|--------------------------|
| Neoprene faced Phenolic | Gasket | 19.8 | 1.6 | 107 |
| Klingersil C-4430 | Gasket | 21.3 | 10.6 | 400 |
| Klinger Topchem 2000 | Gasket | 3.6 | 0.5 | 260 |
| Klinger Topchem 2003 | Gasket | 16.7 | 0.5 | 260 |
| Salmica Flex (SS316 Core) | Gasket | 20.1 | 0.8 | 700 |
| G10 | Gasket, Sleeve, Washer | 24.1-31.5 | 0.1-max. | 150 |
| G11 | Gasket, Sleeve, Washer | 24.0 | 0.1 -max. | 200 |
| Mylar | Sleeve | 157.5 | 0.8 | 145 |
| Phenolic | Sleeve | 5.5 | 1.0 | 107 |
| Reinforced Phenolic | Washer | 7.8 | 1.0 | 107 |

Note: The above values are based upon limited test data. Whilst effort is made to ensure the information in this data sheet is accurate, it must be stressed that it is the users responsibility to ensure suitability for the intended end use. The values quoted above may be subject to modification at a later date.

Gasket sealing element details

| Operating Temp. | Nitrile | Viton | PTFE | Neoprene | EPDM |
|-----------------|----------|----------|-----------|----------|----------|
| °F | -40~+250 | -20~+350 | -320~+450 | -40~+250 | -40~+250 |
| °C | -40~+121 | -29~+177 | -196~+232 | -40~+121 | -40~+121 |

Insulating sleeve elements:

| Specification | Mylar | Nomax | G7 Silicone Glass | G10 Epoxy Glass | G11 Epoxy Glass |
|-------------------------------|----------|----------|-------------------|-----------------|-----------------|
| Dielectric Strength Volts/Mil | 4000 | 400 | 350 | 550 | 550 |
| Water Absorption% | 0.8 | N/A | 0.1 | 0.1 | 0.1 |
| Operating Temp °F | -79~+300 | -65~+450 | -320~+450 | -200~+302 | -50~+392 |
| Operating Temp °C | -40~+149 | -54~+232 | -196~+232 | -128~+150 | -45~+202 |

Assembly of Insulating Gaskets

Assembly of insulating gaskets requires the same good fitting practice used to assemble standard gaskets.

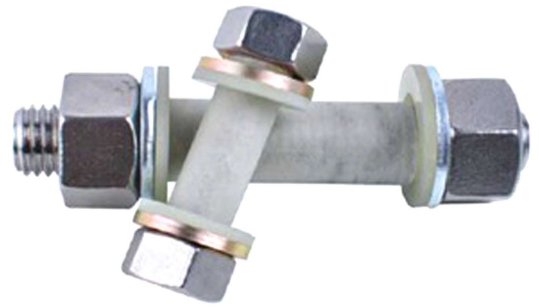
When installing a gasket, the correct installation procedures should be followed, and the flange surface finish (Ra) should be between 3.2 and 6.3 micro meters.

However it is important to note that for Neoprene faced Phenolic (Neophenolic) gaskets the following guidelines apply:

1. The bolt stress must be limited to 30,000 psi
2. Bolts should be tightened with a torque wrench only. Hydraulic tensioning is not recommended for these gaskets.

How to tighten the flange bolts:

1. Clean flanges.
2. Insert gasket between flange faces.
3. Insert isolating sleeves in bolt holes.
4. (If using stud bolts run one nut on one end until end of nut is flush with stud bolt). Place one steel washer and one isolating washer over bolt and insert in bolt hole.
5. Fit one isolating washer and one steel washer on protruding bolt end. Hand-tighten the nuts.
6. Tighten bolts alternately across the diameter of the flange (see drawing above).
7. Always use torque wrench to ensure even tightening.
8. Do not overtighten or leakage may occur.
9. Ensure that bolts are well lubricated.
10. No grease on sealing surfaces



In order to achieve an even distribution of pressure at the flange sealing ring we recommend to tighten using a cross bolt tightening method until the flange faces and the sealing ring are in contact.

If relatively soft and flexible gaskets are used and tightened in a cold condition, the sealing material may relax when the system is put into operation, and the bolts may turn loose.

We therefore recommend to re-tighten the bolts after the operating temperature has been reached - if possible without the operating pressure and at ambiente temperature.

In any case the bolts should be checked and re-tightened, if required, after the initial operation and before bringing the system back from ambiente temperature to the operating temperature.



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