



# ISOMAX HPS & LPS FLANGE INSULATION SETS



## Flange Insulation Sets

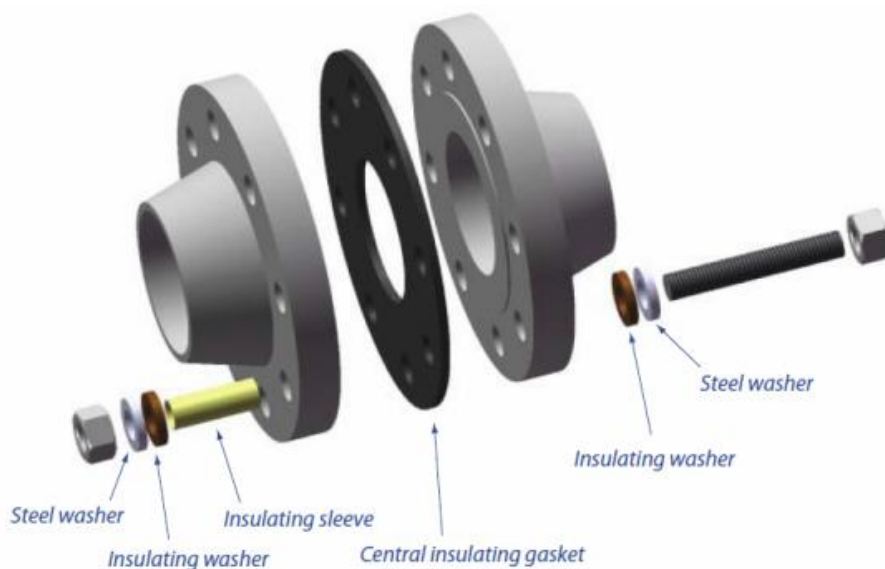
Insulation sets are used to limit corrosion in pipeline systems. Where dissimilar metals are present, the sets remove the possibility of the system acting as a galvanic cell and reduce the risk of galvanic corrosion of the pipe work. Insulation sets are also used to isolate cathodically protected piping systems where they prevent the flow of electro-static charge.

Each flange insulation set comprises one central flat or oval section gasket, one insulation, sleeve, two insulating and two plated steel washers per bolt. The sets are individually packed and clearly labelled with the flange rating, size, type and material combination.

### *Key function of Insulating gaskets:*

- Used to electrically isolate sections of pipe work
- Designed to minimise electro-chemical erosion
- Comprising materials with high dielectric strength
- Manufactured to suit flanged joints to ASME, BS, DIN and customer designs

### *Typical Flange Insulation Set components*

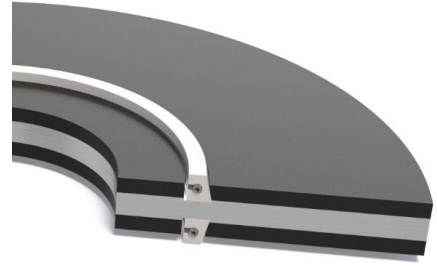


### *Standard Sleeve & Washer Materials in the Set are:*

- G10 Sleeves
- G10 Insulation Washers
- Zinc Plated Metal Washers
- Others on request

## ISOMAX HPS Flange Insulation Set

The HPS is a high strength and high reliability flange gasket designed for electrical insulation and sealing in very critical service applications. The gasket is manufactured using a composite seal retainer material bonded to a high integrity metal core, 316 Stainless Steel is standard. The spring energized PTFE seal offers excellent sealability even at low loads.



- The HPS gasket is a high reliability gasket used for both insulating and general sealing applications
- The HPS is suitable in all services up to and including ANSI 2500# and API 15,000# classes.
- Each HPS insulation set comprises one central insulating gasket, one insulation sleeve per bolt and two insulating and two plated steel washers per bolt.

### Materials

- Metallic Core: 316 Stainless Steel
- (Duplex & Inconel available)
- Gasket Insulating Material: G-10 Glass Reinforced Epoxy (GRE) as standard (G-11 available)
- Seal Material: Spring-energized PTFE as standard (Viton available)
- Insulating Sleeve Material: GRE as standard (Mylar available)
- Insulating Washers Material GRE (standard)
- Steel Washer Material Zinc Plated Steel as standard (stainless steel available).

### HPS Design

The design of the HPS gaskets incorporates a high-strength reinforced epoxy laminate bonded to a 316 stainless steel core as standard (other core materials available). This design results in the gasket having the strength of a traditional metallic gasket while at the same time allowing complete electrical insulation between the flange faces.

PTFE Spring-energised seals are installed into machined grooves to provide a pressure-activated sealing system that allows the HPS to be used as a high pressure insulating gasket. (Viton o-rings also available if specified)

### Electrical Insulation

The HPS distinguishes itself by providing electrical flange insulation in a high-strength gasket.

The HPS significantly reduces the potential for electrical conductivity between two flange faces by providing a non-conducting, non-metallic interface.

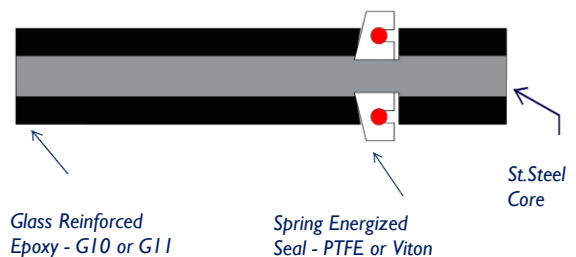
This eliminates potential corrosion resulting from dissimilar metals making contact or from ground induced current corrosion of metal components in pipeline systems.

The HPS is an effective sealing system used in breaking electrical conductivity in piping systems with cathodic protection.

The HPS's steel core and construction enables the gasket to withstand higher system pressure, pressure cycling, over torquing than conventional insulating gaskets.

### General Characteristics

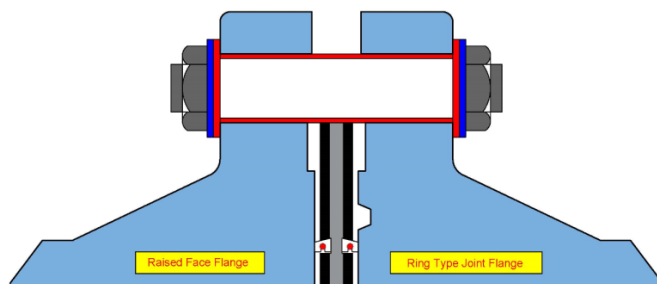
- Flange insulation as well as cathodic protection
- Reduces galvanic corrosion in dissimilar metal materials used in flange joints
- Allows mismatched ring-joint to raised-face flanges to be effectively sealed. HPS will seal in ring joint, raised-face and flat face/slip-on flange applications.
- Will withstand corrosive environments including high CO<sub>2</sub>, H<sub>2</sub>S and processed water
- The bore construction protects flange faces from media-induced corrosion and flow-induced erosion.
- The pressure energised seal allows for reduced flange assembly stress
- Easy to install and remove
- Reusable seal retainer and seals
- Suitable for all ANSI and API rated flanges
- High strength laminate material reduces failure due to over compression



## Sealing raised face to Ring Joint flanges

The positioning of the sealing elements of the HPS 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 in service with the ISOMAX HPS.



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.

## HPS 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. G-11 also available on request.
Seal:	Spring energised PTFE (Viton also available)
Core:	Stainless steel 316
Standard Thickness:	7.0 mm.
Insulating Washers:	G-10 glass reinforced epoxy resin (other materials are available) 3.2mm thickness 2 washers per bolt
Steel Washers:	Zinc-plated steel, 3.2mm thickness (stainless steel washers also available) 2 washers per bolt
Insulating Sleeves:	G-10 glass reinforced epoxy resin. (Mylar and Nomex also available) 1 insulating sleeve per bolt

### Insulation Kit Properties

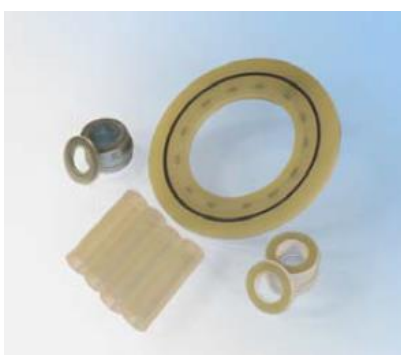
Material type:	G-10 Glass-reinforced epoxy resin	G-11 High temperature resin
Compressive strength:	50,000psi - minimum	50,000psi - minimum
Dielectric strength:	24.1-31.5 kV/mm	24.0 kV/mm
Maximum temp:	150°C	200°C
Water absorption:	0.1% - maximum	0.1% - maximum
Flexural strength:	65,000psi	57,700psi
Tensile 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-energised PTFE (Viton rubber also available)	

## *ISOMAX LPS Flange Insulation Set*

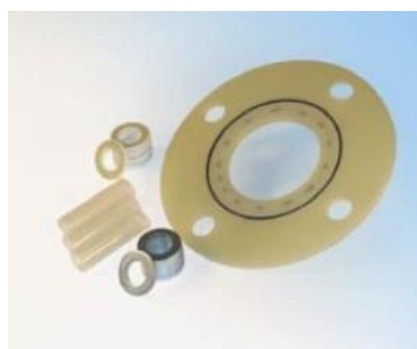
The LPS gasket is an economical seal for electrical flange isolation and general applications requiring higher performance capabilities than those offered by neoprene-faced phenolic gaskets.

The gasket comprises grooves that are machined into high strength G10 laminate and in to which are inserted either spring energized PTFE or Viton o-ring seals which offer excellent sealability at low loads. The LPS gasket is highly suited for use in classes up to and including class 600 lb gasket.

The LPS gasket is available in full face (Type E) and ring style (Type F) configuration.



Ring Face



Full Face

### *General Properties*

- Gives a high sealing reliability in low pressure system.
- Excellent electrical insulation when used on cathodic protection systems.
- Is suitable for most hydrocarbons services subject to seal ring material selection.
- Reduces galvanic corrosion in dissimilar metal flanges.
- Design eliminates media-induced corrosion and flow-induced erosion from flange faces.
- Design requires reduced flange/bolt assembly stress.
- Easy installation and removal.
- Suitable for all ANSI rated flanges up to class 600 lb.

### *Materials*

Gasket Insulating Material & Washers: G-10 Glass Reinforced Epoxy (GRE) as standard (G-11 high-temperature grade also available).

Spring energized PTFE or O-Ring pressure activated seal: PTFE (spring energized) as standard (Viton and Nitrile also available).

Insulation sleeves: GRE (standard) or Nomex for high temperature service.

# Flange Insulation Sets



## LPS Flange Gasket Advantages & Benefits

- Low pressure sealing (ANSI class 150, 300 and 600) service.
- Seals are pressure activated.
- High strength laminate material reduces failure due to excess compression.
- Excellent electrical insulation when used on cathodic protection systems
- Design eliminates media-induced corrosion and flow-induced erosion from flange faces
- Reduces galvanic corrosion in dissimilar metal flanges.
- Also available with a variety of elastomeric seals.
- Easy installation, assembly and removal as design requires reduced flange/bolt assembly stress.
- Flanges do not have to be spread as would be the case with RTJ gaskets. The LPS easily slips in place.
- Gasket is self-aligning and centering, quick to install, no special tools are required.
- Maintenance-free, corrosion resistant design.

## Insulation Kit Contents:

Insulating facing:	G-10 glass reinforced epoxy resin
Seal:	Spring energised Viton ( PTFE also available)
Thickness:	3.2mm.
Insulating Washers:	G-10 glass reinforced epoxy resin (other materials are available) 3.2mm thickness 2 washers per bolt
Steel Washers:	Zinc-plated steel, 3.2mm thickness (stainless steel washers also available) 2 washers per bolt
Insulating Sleeves:	G-10 glass reinforced epoxy resin. (Mylar and Nomex also available) 1 insulating sleeve per bolt

## Core Materials:

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-energised PTFE (Viton or Nitrile rubber also available)	



Certified acc. to DIN EN ISO 9001:2015 Subject to technical alterations.  
KLINGER Industrial Products India Pvt. Ltd. #6 Tarana, 1st Floor, GoodEarth Malhar, Kambipura, Kengeri, Bengaluru  
560074, Karnataka, India. Tel +91 8618523021 / +91 80 2990 9572 / e-mail: info@klinger.in