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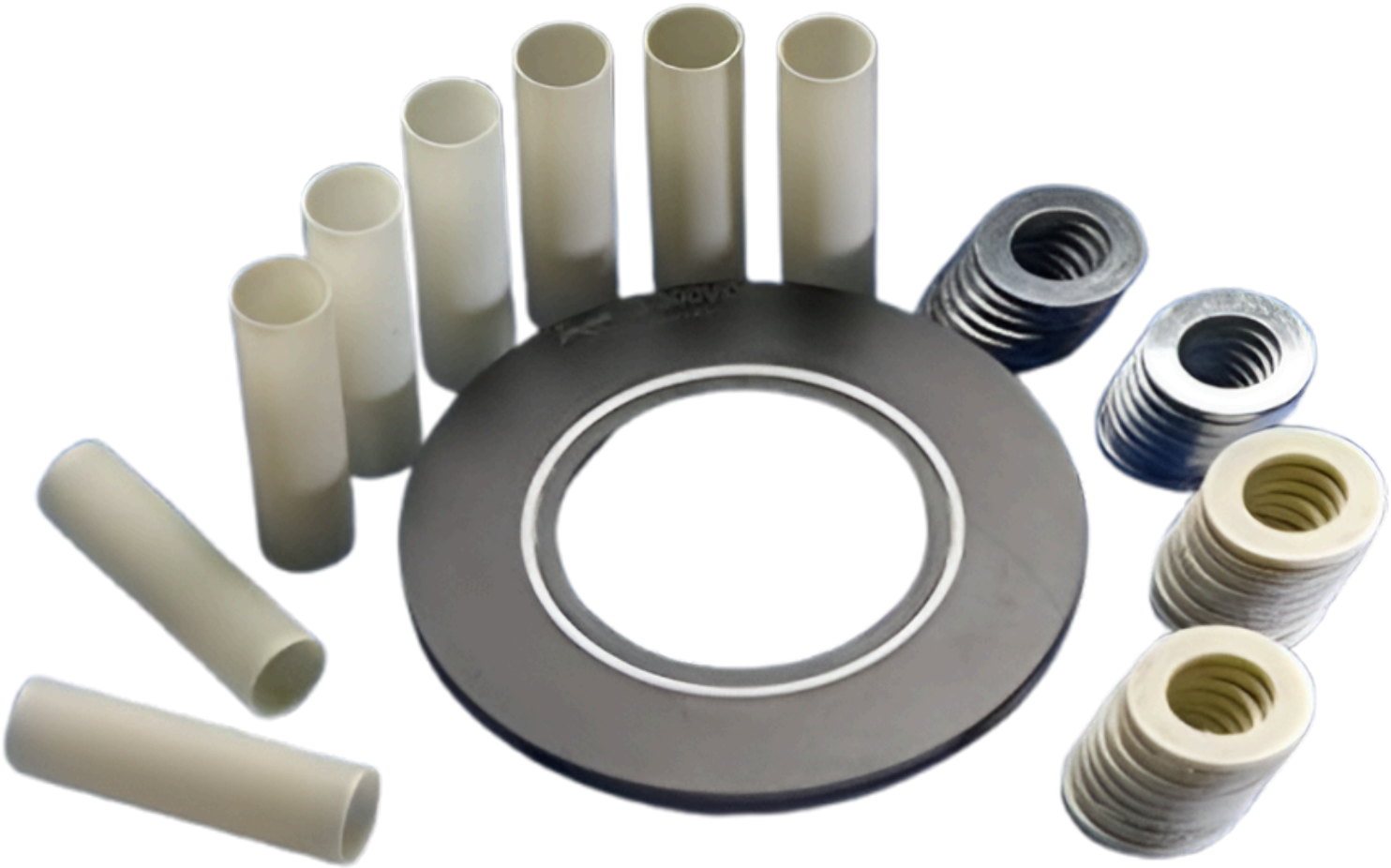
# INSULATION GASKET KIT



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# SHIELD - BASIC

The Shield-BASIC gasket is constructed from G10 glass-reinforced epoxy (GRE). The Shield PRO-BASIC contains a rectangular sealing element combination with a unique, engineered groove design and together they provide an effective sealing element that also requires less bolt load than a typical flat gasket. Sleeves and washers – The sleeves and washers offered with the Shield PRO-BASIC gasket are completely temperature dependent. Most commonly used are Mylar and G10 sleeves accompanied by G10 and zinc plated steel washers.

**Sealing elements**

The composite retainer backing material behind the seal remains uncontaminated and thus permanently holds the seal in place in a static, fully-encapsulated manner. We offers Viton/ EPDM /NBR / PTFE are the standard sealing elements for use with the SHILD PRO-BASIC.

## GASKET MATERIAL PROPERTIES

### Glass-Reinforced Epoxy NEMA grade G-10

| Compressive Strength | Dielectric Strength | Low operating temp | Max operating temp | Water Absorption |
|---|---|---|---|---|
| 66,000PSI | 800 VPM Max | -120°C | 150°C | 0.10% |
| | | | | |
| Tensile Strength | Flexural Strength | | | |
| 32,000 PSI | 52,000 PSI | | | |

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## Glass-Reinforced Epoxy NEMA grade G-11

| Compressive Strength | Dielectric Strength | Low operating temp | Max operating temp | Water Absorption |
|---|---|---|---|---|
| 66,000PSI | 800 VPM Max | -120°C | 150°C | 0.10% |
| | | | | |
| Tensile Strength | Flexural Strength | | | |
| 41,000 PSI | 57,000 PSI | | | |

## Insulating Sleeve Materials

| Sleeve Material | Dielectric Strength | Low operating temp | Max operating temp | Water Absorption |
|---|---|---|---|---|
| Mylar | 500 vpm | -59°C | 149°C | 0.80% |
| Nomex | 500 vpm | -54°C | 232°C | - |
| G7 | 350 vpm | -196°C | 232°C | 0.07% |
| G10 | 550 vpm | -128°C | 150°C | 0.10% |
| G11 | 550 vpm | -45°C | 202°C | 0.10% |

## Insulating Washer Materials

| Sleeve Material | Dielectric Strength | Compressive Strength | Tensile Strength | Water Absorption |
|---|---|---|---|---|
| Phenolic | 500 vpm | 25000 psi | 20000 psi | 1.60% |
| Mica | 400 vpm | 30000 psi | 32000 psi | 0.01% |
| G7 | 350 vpm | 40000 psi | 25000 psi | 0.07% |
| G10 | 550 vpm | 65000 psi | 50000 psi | 0.10% |
| G11 | 550 vpm | 50000 psi | 43000 psi | 0.10% |

## Steel Washer Materials

The materials usually are zinc plated carbon steel, also can be stainless steel 304 or 316 materials. Sometimes for special application, the steel washer can be HCS with PTFE coating.

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# SHIELD - PRO


SHILD PRO Flange Isolation Kit High-Reliability, low pressure sealing system. The SHILD PRO is a specialised kit designed for low pressure service isolation, offering electrical flange isolation and general sealing capabilities. It is specifically designed for use in raised-face and flat-face flanges within ANSI class 150 and 300 service (with class 600 available). In addition to its electrical isolation properties, the SHILD PRO kit is highly effective in isolating flanges made of different metals or in situations where preventing flange face corrosion is desired. The unique design of the SHILDPRO system incorporates patented overlapping and offsetting seal grooves. The sealing element can be any elastomeric material as well as more sophisticated Spring-Energized PTFE lip seals.

## Seal Retainer

The SHILD PRO seal retainer is constructed from NEMA grade G-10 glass-reinforced epoxy (GRE). This material has excellent performance characteristics with very high compressive strength, high flexural strength, high dielectric strength and low fluid absorption. SHILD PRO seals made from grade G-10 material are rated for service up to 302˚F (150˚C). For higher temperature service, grade G-11 is an acceptable alternative material, which is rated for 392˚F (200˚C) continuous service. Two overlapping and offsetting seal grooves are machined into the high strength retainer in order to break the potential leak/weep path that is inherent in all glass laminate materials.

## Sealing elements

The composite retainer backing material behind the seal remains uncontaminated and thus permanently holds the seal in place in a static, fully-encapsulated manner. We offers three standard sealing elements for use with the SHILD PRO. The three standard seals are: PTFE Recommended for all environments.

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**Shield PRO Flange Isolating Gasket Kit Components Materials**

| | |
|---|---|
| **Central big gasket** | G10 or G11 |
| **Metal Core** | NIL |
| **Sealing Ring** | Spring-energized PTFE |
| **Thickness** | 3.2mm (1/8") |
| **Insulating washers** | G10, G11, G7, Phenolic |
| **Insualting Sleeves** | G10, G11, Mylar, Phenolic, Nomex |
| **Steel Washers** | Zinc plated carbon steel or stainless steel |

# SHIELD - PRO HT

SHILD PRO-HT Flange Isolation Kit High-Reliability, low pressure sealing system The SHILD PRO-HT is a specialised kit designed for low pressure service isolation, offering electrical flange isolation and general sealing capabilities. It is specifically designed for use in raised-face and flat-face flanges within ANSI class 150 and 300 service (with class 600 available). In addition to its electrical isolation properties, the SHILD PRO-HT kit is highly effective in isolating flanges made of different metals or in situations where preventing flange face corrosion is desired. The unique design of the SHILD PRO-HT system incorporates patented overlapping and offsetting seal grooves. The sealing element can be any elastomeric material as well as more sophisticated Spring-Energized PTFE lip seals.
Seal Retainer
The SHILD PRO-HT seal retainer is constructed from NEMA grade G-10 glass-reinforced epoxy (GRE). This material has excellent performance characteristics with very high compressive strength, high flexural strength, high dielectric strength and low fluid absorption. SHILD PRO-HT For higher temperature service, grade G-11 is an acceptable alternative material, which is rated for 392˚F (200˚C) continuous service. Two overlapping and offsetting seal grooves are machined into the high strength retainer in order to break the potential leak/weep path that is inherent in all glass laminate materials.

**Sealing elements**
The composite retainer backing material behind the seal remains uncontaminated and thus permanently holds the seal in place in a static, fully-encapsulated manner. We offers PTFE is the standard sealing elements for use with the SHILD PRO-HT.

# GASKET MATERIAL PROPERTIES

## Glass-Reinforced Epoxy NEMA grade G-11

| Compressive Strength | Dielectric Strength | Low operating temp | Max operating temp | Water Absorption |
|---|---|---|---|---|
| 66,000PSI | 800 VPM Max | -120°C | 150°C | 0.10% |
| | | | | |
| Tensile Strength | Flexural Strength | | | |
| 41,000 PSI | 57,000 PSI | | | |

## Insulating Sleeve Materials

| Sleeve Material | Dielectric Strength | Low operating temp | Max operating temp | Water Absorption |
|---|---|---|---|---|
| Mylar | 500 vpm | -59°C | 149°C | 0.80% |
| Nomex | 500 vpm | -54°C | 232°C | - |
| G7 | 350 vpm | -196°C | 232°C | 0.07% |
| G10 | 550 vpm | -128°C | 150°C | 0.10% |
| G11 | 550 vpm | -45°C | 202°C | 0.10% |

## Insulating Washer Materials

| Sleeve Material | Dielectric Strength | Compressive Strength | Tensile Strength | Water Absorption |
|---|---|---|---|---|
| Phenolic | 500 vpm | 25000 psi | 20000 psi | 1.60% |
| Mica | 400 vpm | 30000 psi | 32000 psi | 0.01% |
| G7 | 350 vpm | 40000 psi | 25000 psi | 0.07% |
| G10 | 550 vpm | 65000 psi | 50000 psi | 0.10% |
| G11 | 550 vpm | 50000 psi | 43000 psi | 0.10% |

## Steel Washer Materials

The materials usually are zinc plated carbon steel, also can be stainless steel 304 or 316 materials. Sometimes for special application, the steel washer can be HCS with PTFE coating.

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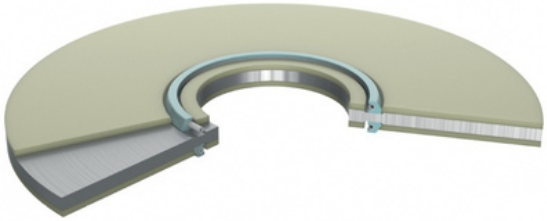
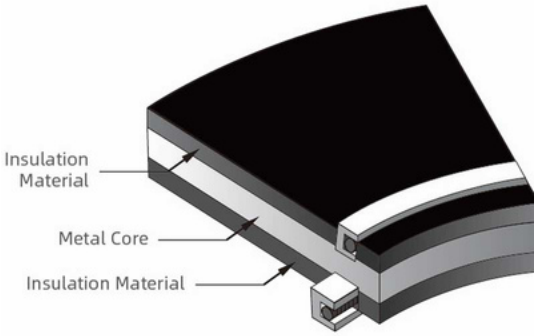
# SHIELD - PROMAX






The **PRO-Max** flange isolating gasket kit is usually made of G10 /G11 and SS316 metal core, and it provides exceptional insulating and general sealing performance in aggressive material applications. The **PRO-Max** flange isolating gasket kit is suitable in all very critical services up to and including ANSI 2500# and API 10,000# classes. And it can match all types of flanges such as raised flange, full face flanges, Ring type joint flanges.

Due to the unique pressure activated sealing mechanism of the **PRO-Max** flange isolating gasket kit, it requires far less bolt stress to seal than any other type gaskets. The **PRO-Max** isolating gasket inner diameter is exactly matched to the flange bore to eliminate turbulent flow and flange face erosion or corrosion. The seal elements are replaceable in the reusable gasket retainer. And our **PRO-Max** flange isolating gasket kit is equal to Pikotek® VCS® / Lamons Defender Isolating Gasket kits.

## Application

**PRO-Max** Flange Isolating Gasket kit can be used for insulation in conjunction with cathodic protection, Insulation between dissimilar metals to prevent galvanic corrosion, wellhead isolation from inter-connected flow lines, valve connections, Christmas Tree connections, Compressor connections, Tanks and heat exchangers with sacrificial anodes to increase anode life, mating mismatched ring-joint to raised-face flanges. it can eliminate fluid trap corrosion between ring-joint (RTJ) flanges where high concentrations of CO2, H2S, other aggressive hydrocarbon media are present, and it also can eliminates turbulence and flow-induced erosion between ring-joint (RTJ) flanges.

## PRO-Max Flange Isolating Gasket Kit Design

The unique and patented design of **PRO-Max** flange isolating gasket kit incorporates high-strength, glass-reinforced epoxy laminate bonded to a stainless steel core like stainless steel 316. This provides the strength of a traditional metallic gasket while maintaining complete electrical insulation between the flange faces. Seal grooves are machined through the laminate insulating material and into the stainless steel core. This provides a strong base for the seal to sit into and breaks the potential leak or weep path that is inherent in glass laminate materials. Spring-energized Teflon internal face seals are installed in the dovetail-shaped seal grooves to provide the trademark pressure-activated sealing performance distinguishing the PRO-Max flange isolating gasket kit from all other high pressure insulating gaskets.

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## Shield PRO-Max Flange Isolating Gasket Kit Components Materials

| | |
|---|---|
| **Central big gasket** | G10 or G11 |
| **Metal Core** | SS316 or other steel metal |
| **Sealing Ring** | Spring-energized PTFE |
| **Thickness** | 6.2mm |
| **Insulating washers** | G10, G11, G7, Phenolic |
| **Insualting Sleeves** | G10, G11, Mylar, Phenolic, Nomex |
| **Steel Washers** | Zinc plated carbon steel or stainless |

## Gasket Material Properties

### Glass-Reinforced Epoxy NEMA grade G-10

| Compressive Strength | Dielectric Strength | Low operating temp | Max operating temp | Water Absorption |
|---|---|---|---|---|
| 66,000PSI | 800 VPM Max | -120°C | 150°C | 0.10% |
| | | | | |
| Tensile Strength | Flexural Strength | | | |
| 32,000 PSI | 52,000 PSI | | | |

### Glass-Reinforced Epoxy NEMA grade G-11

| Compressive Strength | Dielectric Strength | Low operating temp | Max operating temp | Water Absorption |
|---|---|---|---|---|
| 66,000PSI | 800 VPM Max | -120°C | 150°C | 0.10% |
| | | | | |
| Tensile Strength | Flexural Strength | | | |
| 41,000 PSI | 57,000 PSI | | | |

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## Insulating Sleeve Materials

| Sleeve Material | Dielectric Strength | Low operating temp | Max operating temp | Water Absorption |
|---|---|---|---|---|
| Mylar | 500 vpm | -59°C | 149°C | 0.80% |
| Nomex | 500 vpm | -54°C | 232°C | - |
| G7 | 350 vpm | -196°C | 232°C | 0.07% |
| G10 | 550 vpm | -128°C | 150°C | 0.10% |
| G11 | 550 vpm | -45°C | 202°C | 0.10% |

## Insulating Washer Materials

| Sleeve Material | Dielectric Strength | Compressive Strength | Tensile Strength | Water Absorption |
|---|---|---|---|---|
| Phenolic | 500 vpm | **Compressive Strength** | 20000 psi | 1.60% |
| Mica | 400 vpm | 30000 psi | 32000 psi | 0.01% |
| G7 | 350 vpm | 40000 psi | 25000 psi | 0.07% |
| G10 | 550 vpm | 65000 psi | 50000 psi | 0.10% |
| G11 | 550 vpm | 50000 psi | 43000 psi | 0.10% |

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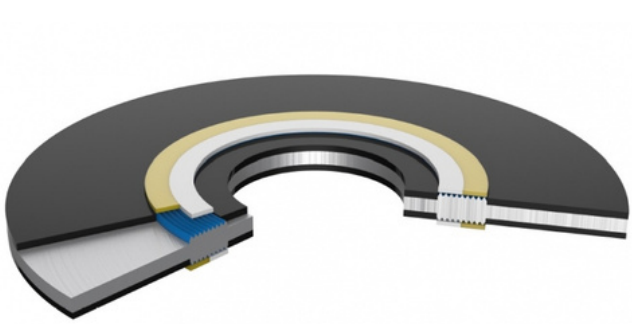
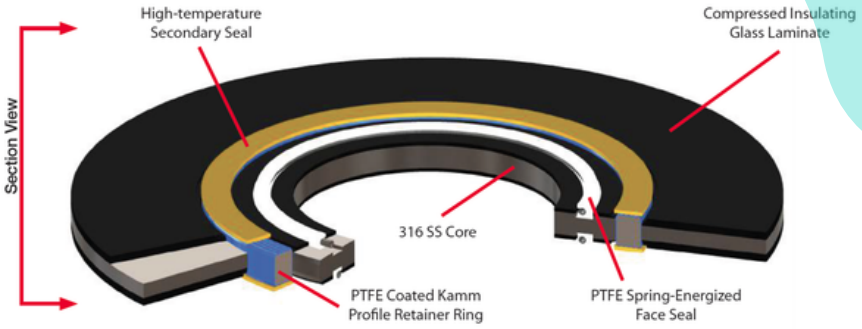
# SHIELD - PROMAX FS






This premium performance fire safe isolation gasket incorporates a coated metallic core housing a modified u-shaped PTFE seal energised with a phynox spring in a patented triple seal design.
This product also significantly surpasses the fugitive emissions requirements of Shell MESC SPE 85/300 3.3.2 Class A.

## PRODUCT FEATURE

On the inside and outside of this seal are two kammprofile sections, the inner is faced with Fluolion 800 modified PTFE material, and the outer with DS Pro, a proprietary high temperature material. G11 GRE material is used to face the outer section of the metallic core.
Each SHIELD PROMAX FS flange isolation kit is supplied with G11 bolt sleeves and a unique washer combination consisting of a metallic washer and specially modified high temperature material.

## TYPICAL APPLICATION

- SHIELD PROMAX FS combines exceptional chemical compatibility and electrical isolation with the capability of maintaining sealing performance.
- Flange isolation for cryogenic applications / LNG service
- Media compatibility with natural gas, oils, other hydrocarbon media and many corrosive environment
- Specified for plant wide use on the majority of flange specifications including ASME, JIS, EN, BS and DIN
- Flange insulation and electrical isolation in conjunction with cathodic protection
- Insulation between dissimilar metals/flanges to prevent galvanic corrosion

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- Gasket Type: E or F
- Seal Elements: KMT (Kammpro/Mica/PTFE)
- Pressure Class: ANSI(150#-2500#), API (2-10K), PN (20-420)
- Sizes: ½" through 48" diameter
- Temperature Range: Cryogenic-303°F (FS G10), -100-392°F (FS G11)

## PERFORMANCE

Maximum temperature: +180°C (+356°F)
Minimum temperature: -45°C (-50°F)
Maximum pressure: 69 MPa/690 bar (10000 psi) (ASME Class 2500)