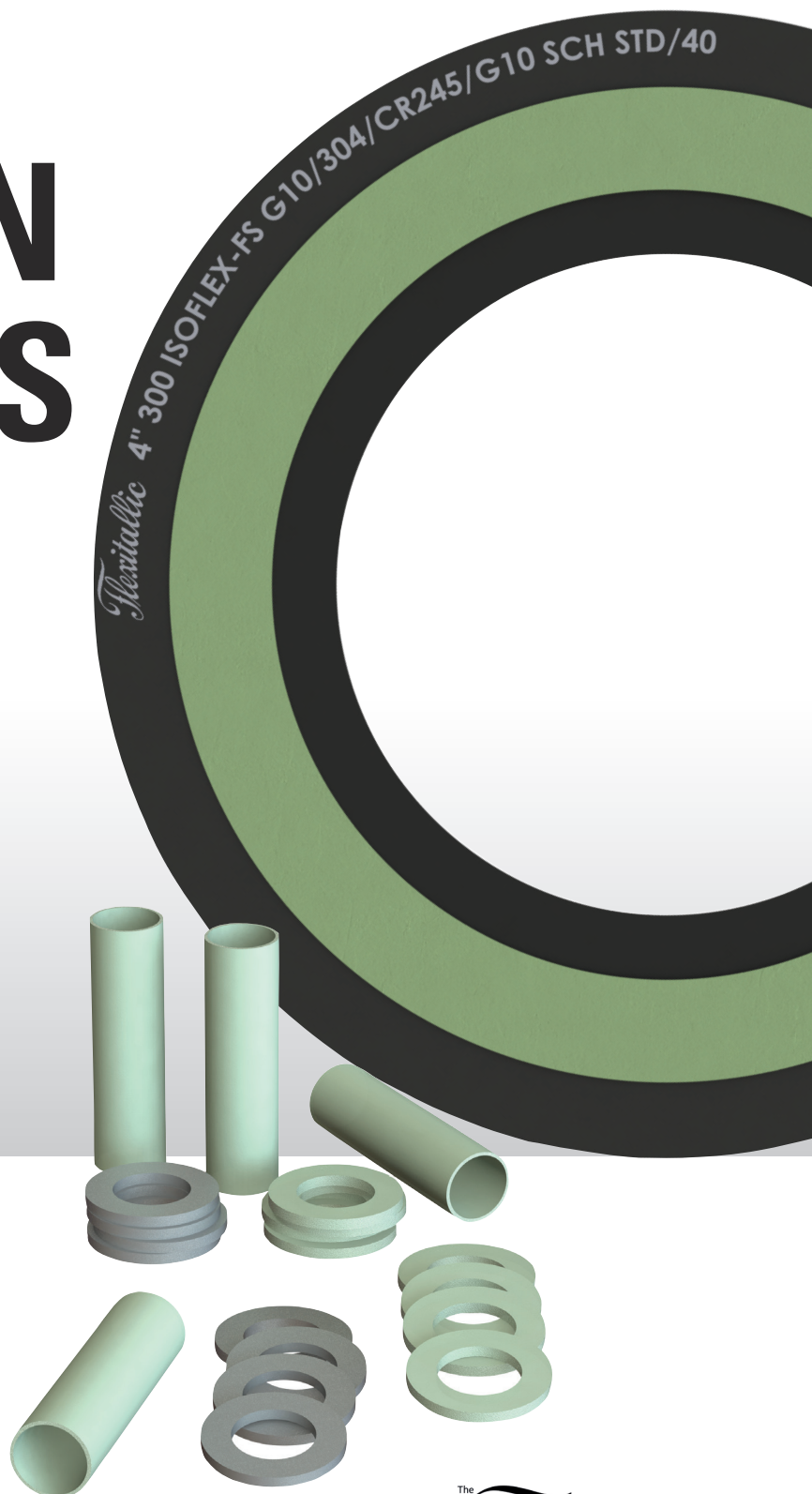


# ISOLATION PRODUCTS

Bringing **innovation**  
to cathodic protection.



# INTRODUCING: ISO**FLEX**® & ISO**PRO**



**Comprehensive product range**  
that addresses both industry and  
customer-specific requirements.



**From our best-in-class  
proprietary designs to  
economical options** and  
everything in between.



**A new isolation gasket**  
that will exceed dielectric  
& sealing capabilities of  
current market products.



Addressing *age-old methods*  
that focus on ***“gasket-to-flange”***  
contact surfaces and asking,  
***“Why not in between?”***



**Boxed kit availability,**  
including: gaskets, isolating  
sleeves & washers, metal  
backup washers.



**World-Class Application  
Engineering Support**  
Available via: phone,  
email & live chat.



**Professional Grade training, workshops and seminars,** which are centered on ***“Best Practices”***  
approach to installation / bolt-up procedures. Sessions range from 2 - 6 hours, but are completely  
customizable to fit your specific needs.

## GOOD, BETTER, BEST-IN-CLASS.

# ISOFLEX®

- Exceeds the current market sealing performance.
- Flexitallic's proprietary and patented designs that incorporate proven technology and proprietary materials.
- A product platform consisting of two best-in-class designs and will evolve over time.

# ISOPRO

- Equals performance of products that are currently available within the market.
- Meets difficult-to-change and long-standing written specifications.
- For use in non-critical service and low(er) temperature applications.

## ISOPRO - RGS

Cut Gasket Material

## ISOPRO - NFP

Nitrile Faced  
Phenolic

## ISOPRO - IP

Inclined Plane

## ISOFLEX® - LT

Superior Alternative  
to Inclined Plane

## ISOFLEX® - FS

Best of Sealing. Best  
of Isolation. Fire Safe.

GOOD

BETTER

BEST-IN-CLASS

## COMMON INDUSTRY PITFALLS

- Sole emphasis on the isolating properties at the expense of overall sealability.
- Emphasis exclusively on dielectric strength rather than resistance under compression representative of bolted connection.
- Several high-end designs rely on narrow line seals which are more vulnerable to surface imperfections.
- Positioning of the narrow line seal is towards the inner diameter (ID) of the flange which is not ideal.
- Consequences of metal protrusion on isolating properties, as seen in spring energized seals.
- Reliance (upon compression) on the non-metallic GRE for compressive & mechanical strength can lead to long term problems & failure.
- Possible drawbacks of glass reinforced epoxy (GRE), such as permeation, chemical attack, strength and creep.
- Sleeve length not specific to washers, flanges and gasket thickness combination.

# ISOFLEX® - FS

## BEST OF SEALING.

## BEST OF ISOLATION.

THE ISOFLEX® - FS DESIGN IS AIMED AT ELIMINATING THE CONCERNS AND PITFALLS OF EXISTING MARKET OFFERINGS.

**ISOFLEX®-FS is a fire safe isolation gasket that is ideal for high pressure & critical service applications utilizing:**

- Dual serrated metallic cores (Flexpro®) halves
- Faced with Corriculite®, a fire safe non-conductive sealing material
- Separated by polyimide isolating film. Dielectric Strength of 3000 V/mil
- Complete with NEMA grade glass reinforced epoxy (GRE) inner and outer rings
- ISO FLEX®-FS is API 6FB Fire Safe. One gasket satisfies both general & fire safe services.



## A CLOSER LOOK AT ISO FLEX® - FS

Seal location is engineered to ideally position the sealing area more closely to the fasteners.

### INNER RING: NEMA GRADE GRE

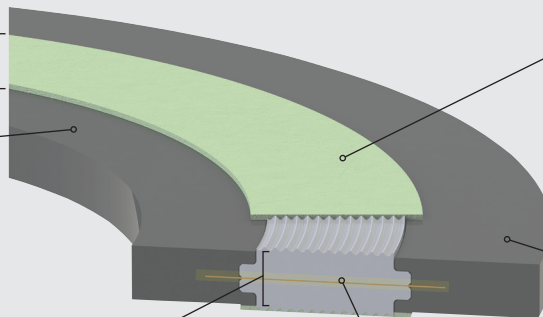
Sealing is exclusively accomplished by faced serrations & polyimide isolation barrier.

GRE components are auxiliary and are not part of primary seal.

### DUAL Flexpro® SEAL DESIGN (304SS KAMMPROFILE).

4X Wider Seal with Flexpro® than Spring Energized Seals. Less susceptible to localized flange damage.

Compressive load rests on the Flexpro® (Kammprofile) to affect excellent tightness.



### GASKET CORE: POLYIMIDE ISOLATION BARRIER

Excellent electrical resistance. Boasts a strong combination of thermal, chemical and mechanical properties.

Dielectric Strength (ASTM D149): 3000 V/mil.

Facings & Polyimide Isolating Barrier extend beyond the metal acting as a protective shield.

### CORRICULITE® FACINGS

Prevents the onset of galvanic corrosion and provides gas tight sealing performance with wide range of fluid compatibility.

- API 6FB Fire Safe.
- Inherently non-conductive.

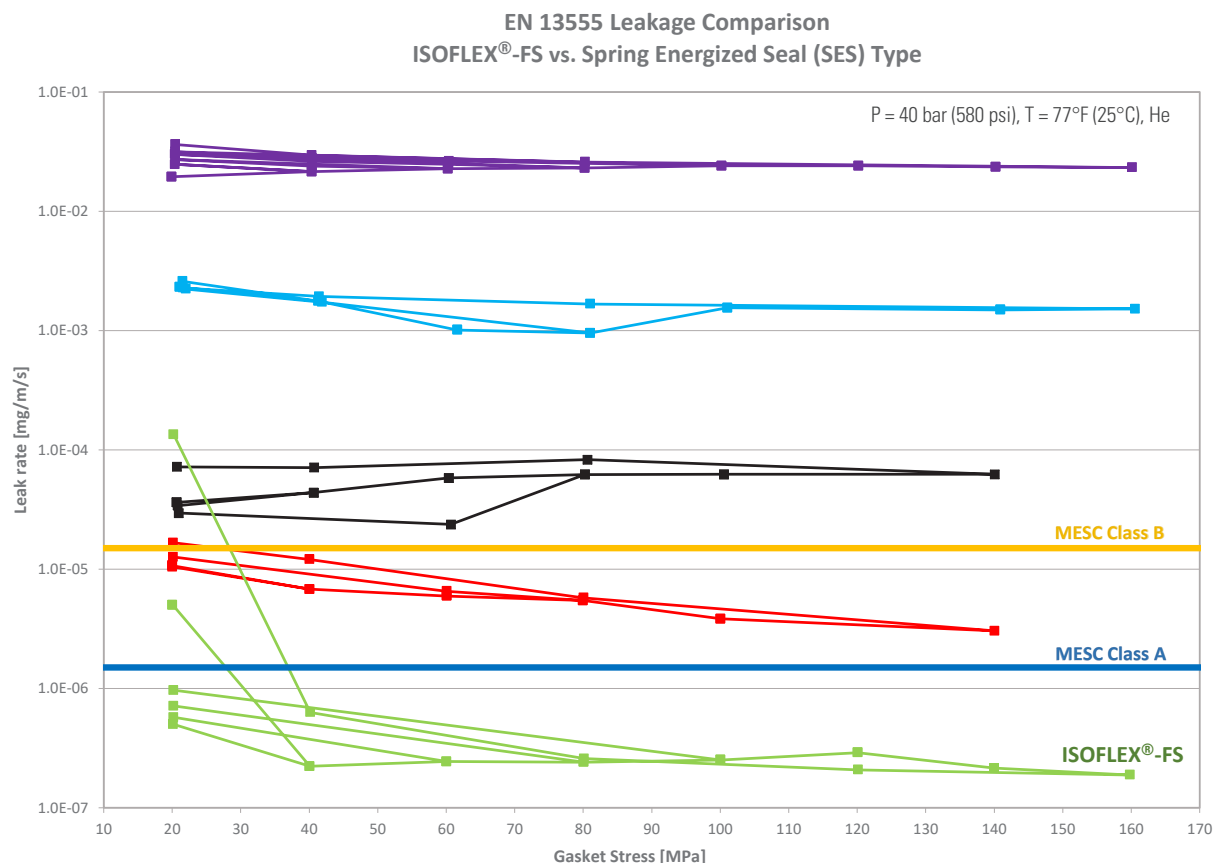
### OUTER RING: NEMA GRADE GRE

Sealing is exclusively accomplished by faced serrations & polyimide isolation barrier.

GRE components are auxiliary and are not part of primary seal.

# ISO FLEX<sup>®</sup> - FS

## LEAKAGE COMPARISON: ISO FLEX<sup>®</sup> - FS & SPRING ENERGIZED SEAL TYPES



- Spring Energized Seal (SES) Type Isolation
- Gaskets that are currently in the market from the competition.
- ISO FLEX<sup>®</sup>-FS

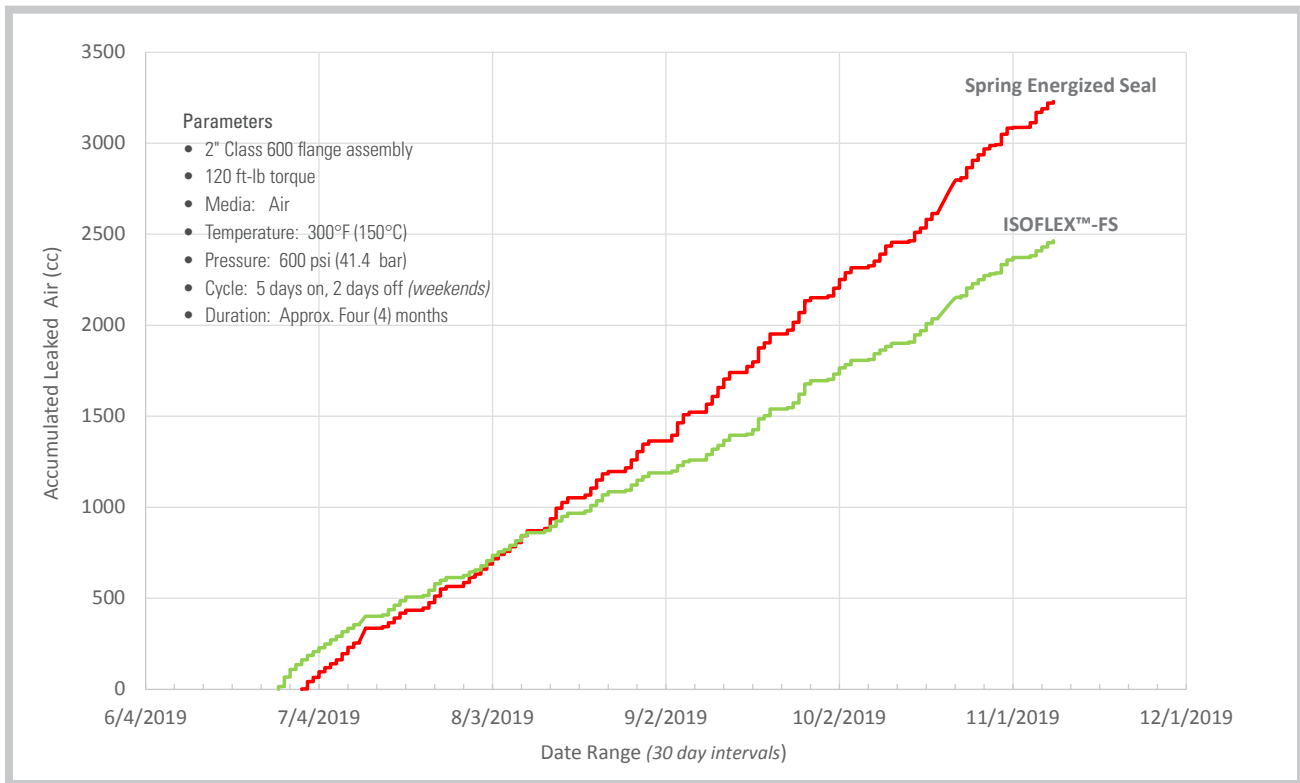
**SPRING ENERGIZED SEAL (SES) TYPE ISOLATION GASKETS ARE INCONSISTENT IN SEALING PERFORMANCE.**

## POLYIMIDE FILM TYPICAL PROPERTIES

Properties	Test Standard	Typical Value	Unit
Dielectric Strength	ASTM D149	3000	V/mil
Volume Resistivity	ASTM D257	1.0 x 10 <sup>15</sup>	Ohm cm
Tensile Strength	ASTM D882	24	ksi

# CORRICULITE®-FACED FLEXPRO® OUTPERFORMS THE SPRING ENERGIZED SEAL IN CYCLING APPLICATIONS

## LONG TERM CYCLE TEST: ISOFLEX®-FS vs. SPRING ENERGIZED SEAL



### ISOFLEX® -FS

### SPRING ENERGIZED



### Post Test Observations

- With the Spring Energized Seal Type - Load rests on GRE surface and is not concentrated on the SES
- Both load & heat cause the GRE to creep into the flange bore
- ISOFLEX®-FS has no issues as zero load rests on GRE
- Also corroborated by EN13555 Pqr testing (0.99 @ 150°C).

# ISOFLEX® -FS

BEST OF SEALING.  
BEST OF ISOLATION.

## ELECTRICAL RESISTANCE TESTING – UNDER COMPRESSIVE LOAD



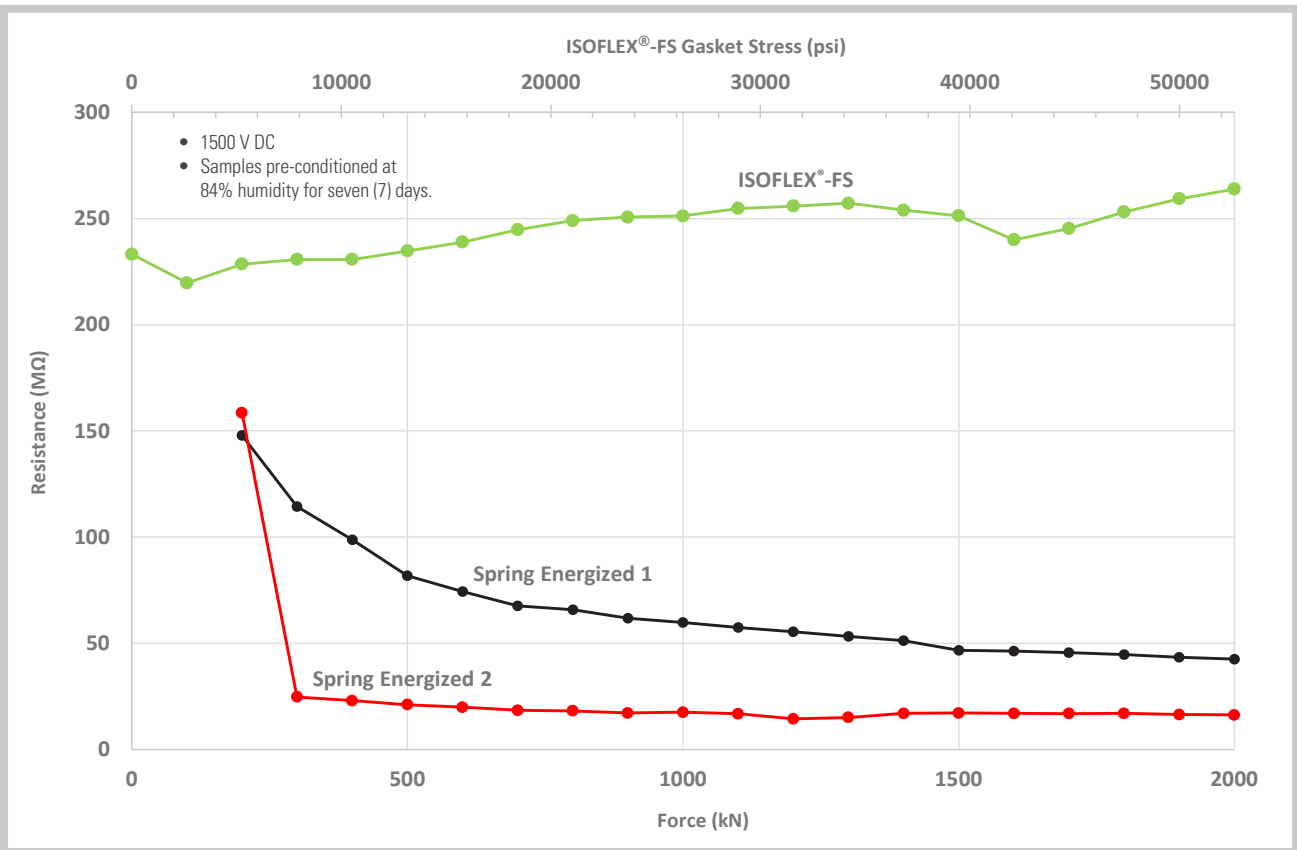
Testing performed at the elevated humidity level of 84%.



Increased relative humidity can lead to more moisture being present. Moisture reduces electrical resistance & isolation properties.



Achieving a high level of electrical resistance with high humidity is a significant result, even more so while under increasing compressive load.



### SPRING ENERGIZED 1



Diminishing electrical resistance is seen as a result of the spring moving closer towards the flange under compressive load.

### SPRING ENERGIZED 2



A rapid drop in resistivity is experienced as a result of the spring cutting through the PTFE.

### ISOFLEX® -FS



Electrical resistance of the ISOFLEX®-FS remains constant at the extreme gasket stress of 52,620 psi.

# ISOFLEX® - LT

## THE ISOFLEX® - LT DESIGN IS LESS SUSCEPTIBLE TO LOCALIZED FLANGE DAMAGE.

- Base ring is made with NEMA Grade glass reinforced epoxy (GRE).
- Seal design based on trusted Flexpro® (*Kammprofile*) style serrations in the GRE base ring.
- Faced with Corriculite®, to provide a reliable seal.
- The combination of the seal design and Corriculite® creates a ring of highly compressed facing material to aid in sealing small molecules.



## A CLOSER LOOK AT ISO FLEX® - LT

Seal location is engineered to ideally position the sealing area more closely to the fasteners.

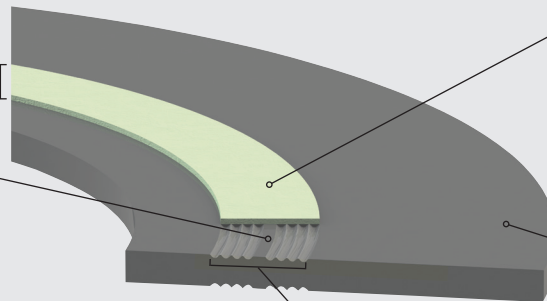
The blank space creates a ring of highly compressed facing material to aid sealing small molecules.

### INCLINED PLANE DESIGN

Seal is made from soft material like: Nitrile, Viton or PTFE.

Reliance on narrow seal (.1") is not ideal.

Susceptible to localized flange damage.



### CORRICULITE® FACINGS

Prevents the onset of galvanic corrosion and provides gas tight sealing performance with wide range of fluid compatibility.

Corriculite® facing is inert and inherently non-conductive.

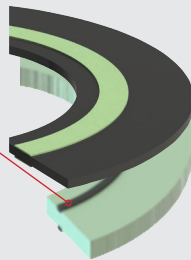
### BASE RING: NEMA GRADE GRE

(Glass reinforced epoxy).

### DUAL FLEXPRO® STYLE SEAL DESIGN

Seal is a combination of Flexpro® Style serrated G10 or G11 and faced with Corriculite® material.

3X wider seal with Flexpro® (.35") than the Inclined Plane design.

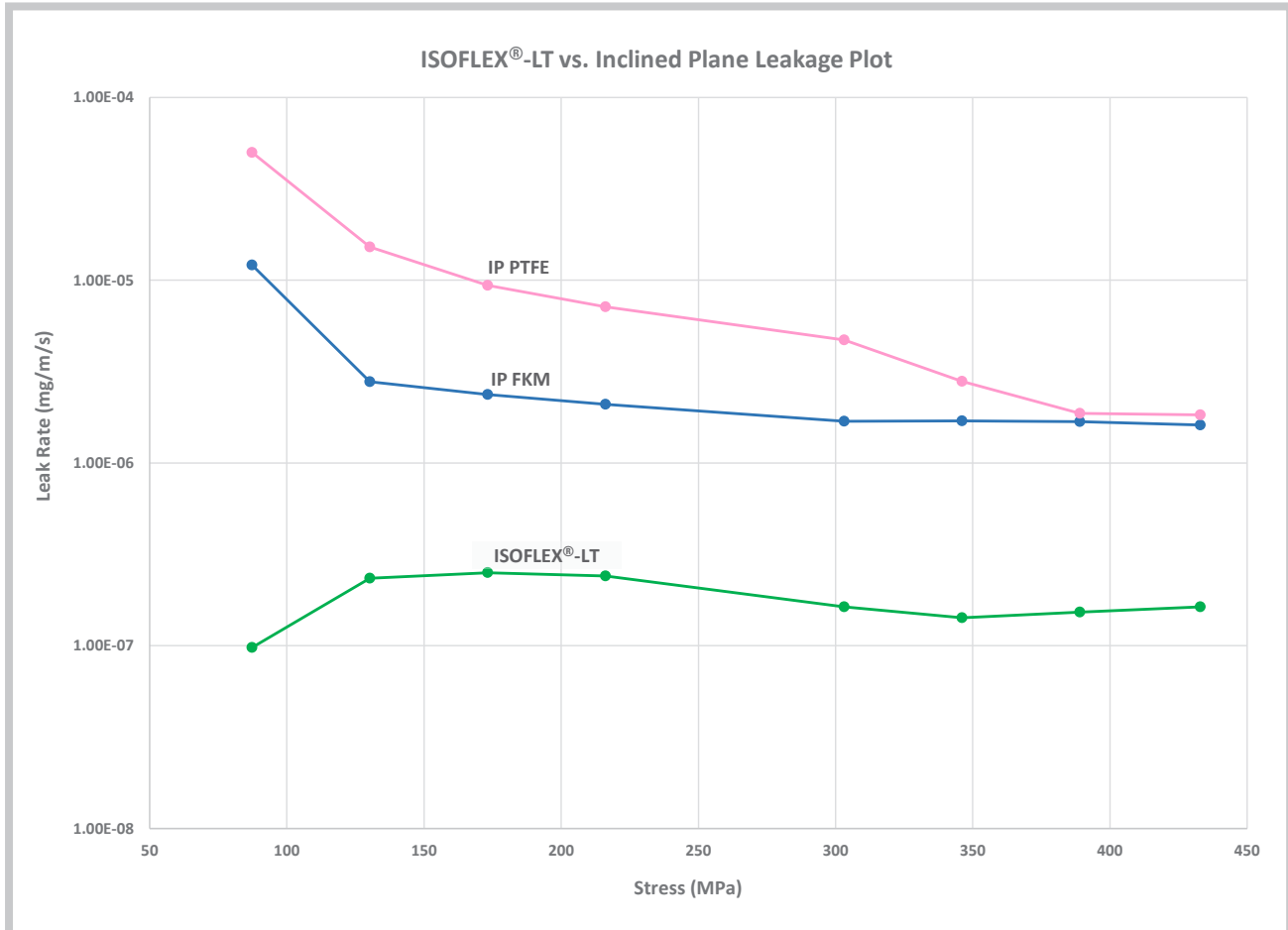




# ISOFLEX® -LT

ISOFLEX®-LT SEALS BETTER THAN THE INCLINED PLANE STYLE GASKETS.

PROVEN TECHNOLOGY. RESULTS DRIVEN.



ARE YOU FLEXITALLIC SAFE?



Interested in having a technical conversation about Flexitallic's ISOFLEX® or ISOPRO Products?

Our team of World-Class Application Engineers are available to answer any of your technical questions via: phone, email or live chat.

**Phone:** +1 281.604.2400

**Email:** [dpengineering@flexitallic.com](mailto:dpengineering@flexitallic.com)

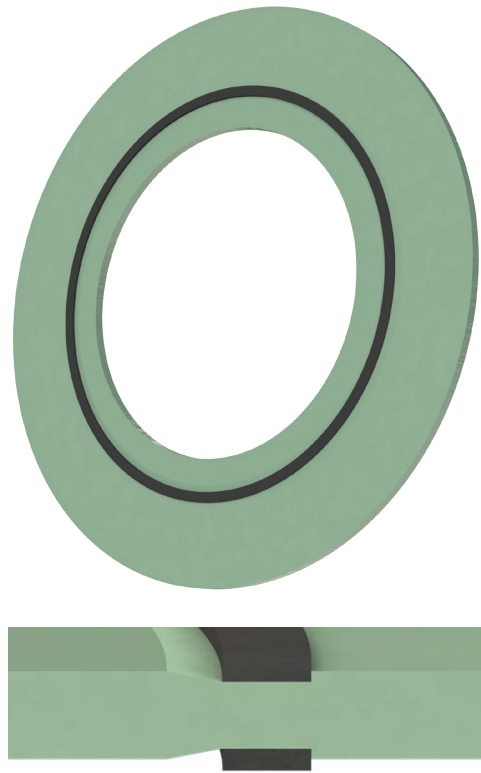
**Live Chat:** <https://www.flexitallic.com/us/>



# ISOPRO - IP

**ISOPRO-IP IS A FLANGE ISOLATION GASKET UTILIZING NEMA GRADE GLASS REINFORCED EPOXY (GRE) THAT IS MACHINE-GROOVED WITH A RECESS AND INCLINED PLANE IN WHICH CONTAINS A SOFT SEALING ELEMENT.**

- A better alternative to neoprene or nitrile faced phenolic. Available in G10 or G11.
- The engineered groove geometry enables the internal pressure to energize the sealing element.
- Ideal for low to medium pressure classes and general service use.
- Choice of sealing elements available: Nitrile, Viton, or PTFE.



# ISOPRO - NFP

**ISOPRO-NFP IS A FLANGE ISOLATION GASKET MADE WITH A PHENOLIC CORE AND NITRILE FACINGS.**

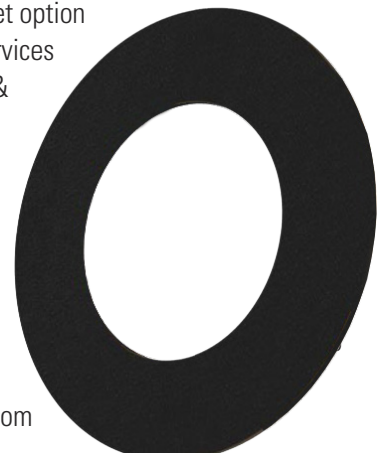
- A good alternative to neoprene based material, the ISOPRO-NFP isolation gasket offers a more broad temperature range.
- Available as a cut ring (Style F) or full face (Style E).
- Gasket OD is sized to the bolt hole's edge to allow adequate room for the sleeves.



# ISOPRO - RGS

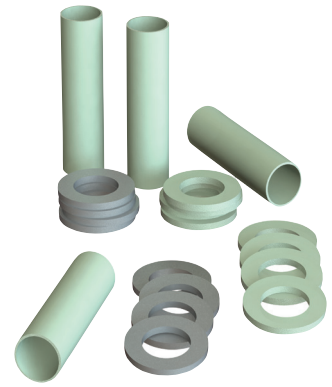
**ISOPRO-RGS IS AN ISOLATION GASKET, WHICH IS CUT FROM A SHEET SEALING MATERIAL.**

- Cut from neoprene, compressed non-asbestos fiber sheet & PTFE.  
*Other materials are available upon request.*
- An economical gasket option in applications or services where temperature & pressure are non-demanding.
- Available as a cut ring (Style F) or full face (Style E).
- Gasket OD is sized to the bolt hole's edge to allow adequate room for the sleeves.



# KIT COMPONENTS

## FULL KIT AVAILABILITY



## ISOLATING SLEEVES AND WASHERS

### Isolating Sleeves - Typical Temperature Limits

	Mylar	Nylon	Phenolic	PTFE	G10	G11
<b>Max Temp °F (°C)</b>	302 (150)	150 (65)	250 (121)	500 (260)	302 (150)	392 (200)
<b>Min Temp °F (°C)</b>	-94 (-70)	-20 (-29)	-65 (-54)	-400 (-240)	-200 (-129)	-200 (-129)

**Note:** Sleeves are cut-to-length, accounting for double washer (DW) or single washer (SW) use, flange type (flat or raised face), flange thickness including raised face height, and gasket thickness.

### Isolating Sleeve Length Matters

- Isolating sleeves are critical to achieving electrical isolation. For this reason, application-specific details are required to ensure that the isolating sleeves are cut to the correct length.
- Required Information:
- Specify the flange type: Flat or Raised Face (*Flange thickness & raised face height may be required.*)
- Specify isolating washer requirement: Double Washer (DW) or Single Washer (SW).

### Isolating Washers - Typical Temperature Limits

	Phenolic	G10	G11	Mica Faced Flexpro®**
<b>Max Temp °F (°C)</b>	250 (121)	302 (150)	392 (200)	1000 (538)
<b>Min Temp °F (°C)</b>	-65 (-54)	-200 (-129)	-200 (-129)	-58 (-50)

**Note:** Standard metallic washer offering is Zinc Plated Carbon Steel. Stainless Steel available upon request. \*\* Needed when Fire Safety is required.

### Washer Specification

#### DOUBLE WASHER (DW) SET

Includes the following components for each bolt:

- Qty: 2 -- Metallic back-up washers
- Qty: 2 -- Isolating washers
- Qty: 1 -- Full length isolating sleeve

*Note: Double Washer is standard offering.*

#### SINGLE WASHER (SW) SET

Includes the following components for each bolt:

- Qty: 1 -- Metallic back-up washer
- Qty: 1 -- Isolating washer
- Qty: 1 -- Full length isolating sleeve

#### ONE-PIECE SLEEVE & WASHER COMBO

Includes the following components for each bolt:

- Qty: 1 -- Metallic back-up washer
- Qty: 1 -- Isolating washer
- Qty: 1 -- Full length isolating sleeve

*Note: One-Piece Sleeve & Washer Set are constructed to allow for easier installation and to act as a visual indicator of sleeve utilization.*

# WHAT IS CORRICULITE®?

## THE NEW STANDARD FOR SEALING SOLUTIONS IN CORROSIVE ENVIRONMENTS



### THE BENEFITS OF CORRICULITE® ARE CLEAR

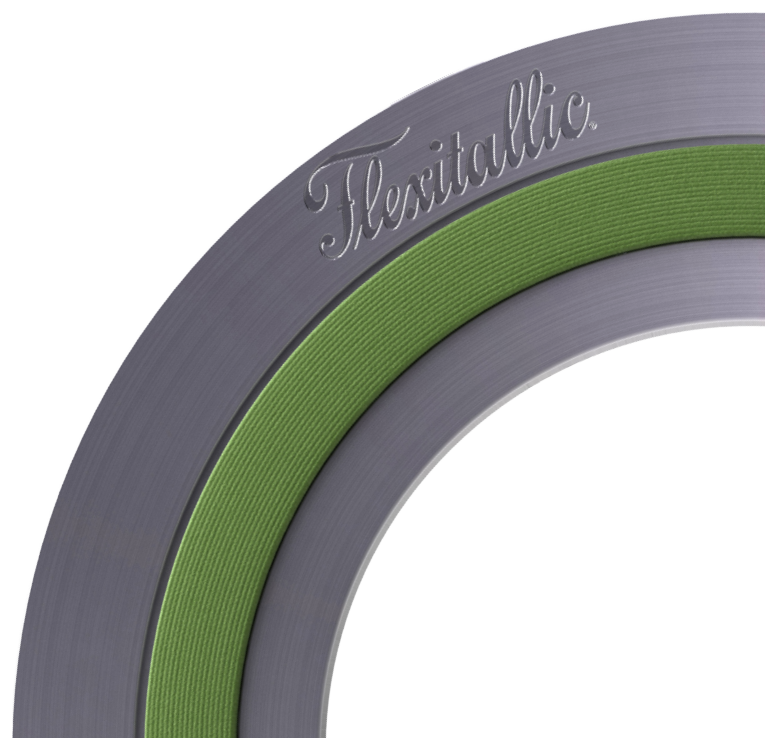
<b>FIRE SAFE - PASSES API 6FB FIRE TEST</b>	<b>PROVIDES GAS TIGHT SEALING PERFORMANCE</b>	<b>WIDE RANGE OF CHEMICAL COMPATIBILITY</b>
<b>MATERIAL IS INERT AND INHERENTLY NON CONDUCTIVE</b>	<b>PREVENTS THE ONSET OF GALVANIC CORROSION</b>	<b>DESIGNED FOR USE IN HYDROCARBON &amp; SEAWATER SERVICE</b>
<b>TEMPERATURE RANGE -321°F (-196°C) TO +500°F (260°C)</b>	<b>SEALS TIGHTER THAN GRAPHITE</b>	<b>COST EFFECTIVE, FLANGE CORROSION PROTECTION</b>

Responding to customer demands for an improved material with strong anti-corrosion characteristics.

Flexitallic created Corriculite® - a filler material for spiral wounds and facing for Isolation gaskets.

Corriculite® was specifically designed for use in corrosion-sensitive environments, such as seawater and hydrocarbon services.

To date, our proprietary material is widely utilized across a number of industries, including oil and gas, power and marine.



## A WINNING COMBINATION OF OPTIMUM SEALING AND ANTI-CORROSION PROPERTIES.

### A PROVEN SOLUTION

A number of benchmark tests have been carried out to validate the performance of Corriculite® as sealing material in corrosion sensitive conditions.

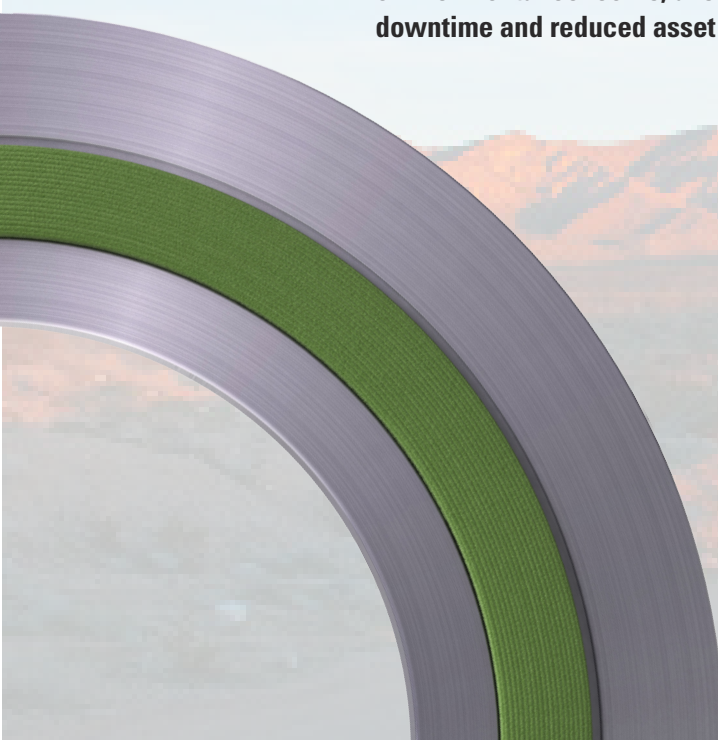
**For more information visit:**  
**Corriculite.com**





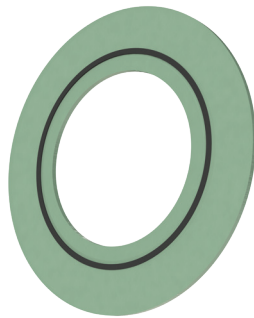
An example of corrosion caused by use of conventional graphite gaskets.

**CORRICULITE**  
Protection / Sealed in

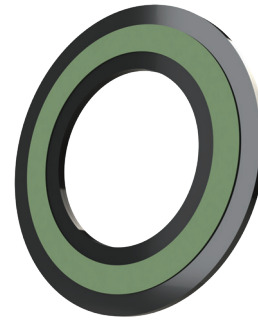
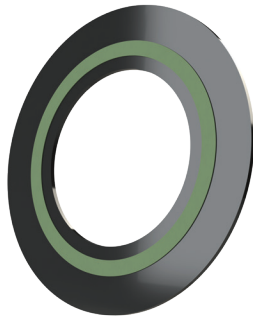
**Joints in hydrocarbon and seawater services are vulnerable to gasket degradation and flange face corrosion, which results in increased costs, lost production as well as safety and environmental concerns, unscheduled downtime and reduced asset availability.**



# ISOLATION OFFERING CHART

	ISOPRO		
			
	ISOPRO -RGS	ISOPRO-NFP	ISOPRO -IP
GASKET OVERVIEW	Cut Gasket Material	Nitrile Faced Phenolic Cut Gasket	“Inclined Plane” type - Glass Reinforced Epoxy (GRE) with machined recess & soft sealing element.
PRIMARY ISOLATION	Neoprene Compressed Fiber Sheet	Phenolic Core with nitrile facings	NEMA Grade GRE G10 or G11
PRIMARY SEALING	PTFE		Nitrile, Viton, PTFE
FACING MATERIAL(S)	N/A	Nitrile	No additional facing
THICKNESS (in.)	1/8” (0.125”)	1/8” (0.125”)	1/8” (0.125”)
TEMPERATURE RANGE	Refer to datasheet.		
PRESSURE CLASS RANGE	Class 150 to 300	Class 150 to 300	Class 150 to 900
COLOR	Black	Black	Green
CERTIFICATIONS & APPROVALS			
KIT OVERVIEW			
ISOLATION SLEEVE MATERIALS	Mylar, Phenolic, G10 or G11		
ISOLATION WASHER MATERIALS	G10 or G11		
METALLIC WASHER MATERIAL	Zinc Plated Carbon Steel (Alternative facing available upon request.)		
REQUIRED FOR ORDERING			
STYLE TYPE	Style “F” (Ring) or Style “E” (Full Face)		
PIPE SCHEDULE	Pipe Schedule (Gasket ID matches bore). When not supplied, standard schedule is assumed.		
WASHER SPECIFICATION	Double Washer (DW) or Single Washer (SW). Sleeves are sized to extend through washers to both hex nuts.		

# ISOFLEX®



## ISO FLEX® -LT

Glass Reinforced Epoxy (GRE) with Flexpro® (kammprofile) serrations and Corriculite® facing

NEMA Grade G10 or G11

Corriculite® faced serrations precision-machined for concentrated load.

Corriculite® *(Alternative facings available upon request.)*

1/8" (0.125")

## ISO FLEX® -FS

Flexpro® (kammprofile) halves with Corriculite® facing separated by polyimide film. Fire Safe design.

Polyimide film

Two 304SS Flexpro®s with Corriculite® facing.

Corriculite® or Thermiculite® *(Alternative facing available upon request.)*

1/4" (0.25")

*Refer to datasheet.*

Class 150 - 900

Class 150 to 2500

Black & Green

Black & Green

Fire Safety API 6FB • Exceeds MESC SPE 85/300-2017 Fugitive Emissions Class A Requirements

## KIT OVERVIEW

Mylar, Phenolic, G10 or G11

G10 or G11

Fire Safe Applications: Mica faced Flexpro®  
Non-Fire Safe Applications: G10 or G11

Zinc Plated Carbon Steel *(Alternative facing available upon request.)*

## REQUIRED FOR ORDERING

Style "F" (Ring) or Style "E" (Full Face)

Pipe Schedule (Gasket ID matches bore).  
*When not supplied, standard schedule is assumed.*

Double Washer (DW) or Single Washer (SW).  
*Sleeves are sized to extend through washers to both hex nuts.*



# THE FLEXITALLIC GROUP

The Flexitallic Group is the international market leader in the manufacture and supply of high quality, high value industrial static sealing products, delivering industrial gaskets on a global scale.

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Fax. +780 465 1177

[www.flexitallic.ca](http://www.flexitallic.ca)

## About The Flexitallic Group

The Flexitallic Group is a global leader in specialised sealing solutions and products serving the oil and gas, power generation, chemical and petrochemical industries in emerging and developed markets. Focused on the upstream, downstream and power generation sectors, it has operations in France, the United States, Canada, Mexico, the United Kingdom, Germany, Italy, Belgium, the United Arab Emirates, Thailand and China plus a network of worldwide licensing partners and distributors.