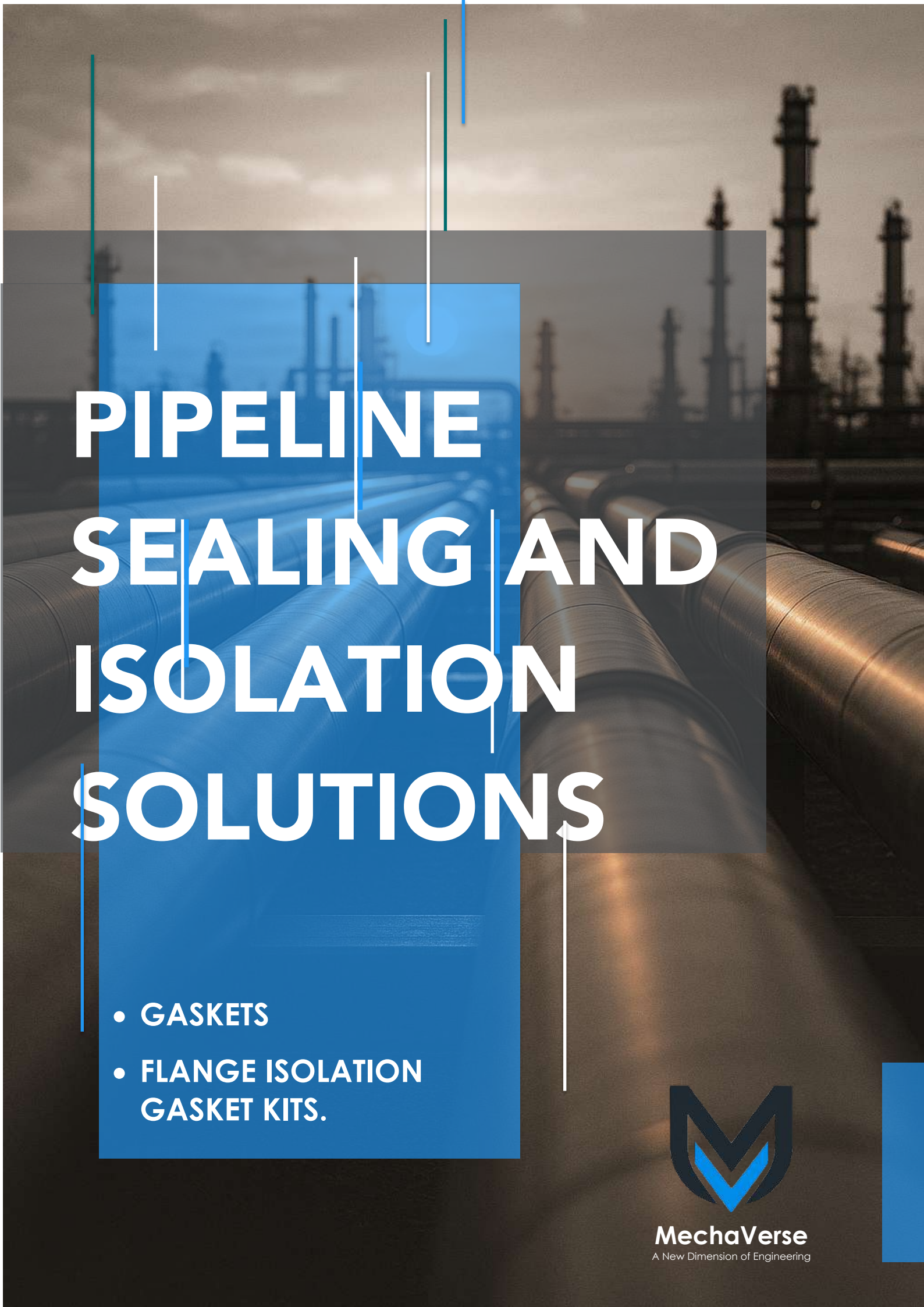

PIPELINE SEALING AND ISOLATION SOLUTIONS

- GASKETS
- FLANGE ISOLATION GASKET KITS.

MechaVerse
A New Dimension of Engineering

INDEX

SECTION	PAGE

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1. INTRODUCTION:

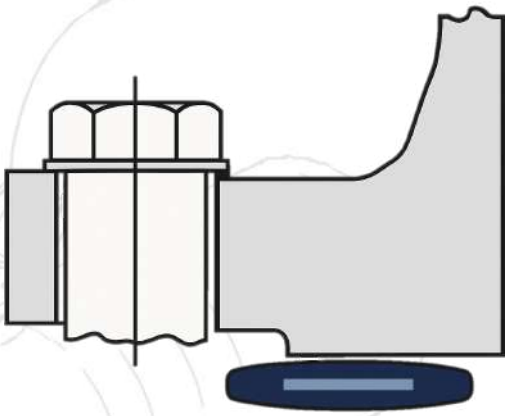
Rubber-Steel flange gasket is needed for the protection sealing of flange connectors in most areas of pipeline construction. The usage of rubber-steel gasket is extremely recommended for applications where a secure sealing with low surface pressure is expected.

The rubber-steel flange gaskets use a steel insert vulcanized into an elastomeric material. During vulcanization, extreme adhesion is achieved between the steel core and the rubber coating. Sometimes below the highest possible stresses, this makes it extremely hard to shift, detach or blow out.

The Rubber-Steel Metal Gaskets have a wide range of utilizes based on the rubber elastomer involved and are compatible with water, steam, gas, air, acids, alkalis, hydrocarbons, among other things, with running temperature of up to approx. 200 °C being achievable. Rubber-steel gaskets are used as industrial gaskets. This depends on the various rubber materials and other requirements, such as the application in the drinking water, gas, food.

Applications:

- Typical pipeline design, plant construction.
- Plastic material pipelines and equipment manufacturing.
- Industry: enameled and rubberized pipelines.
- Water, gas, sewage, oil and chemicals.
- Mining.



2. FEATURES AND BENEFITS

Advantages:

- Blow-out basic safety and greatest steadiness on account of centrally situated, corrosion-protected and vulcanized steel inlay.
- Leakage safeguard for flanges with tough surface types, destroyed flange gasket.
- High durability compensates pressure changes and variations in temperature.
- Low loss rates on account of homogeneous design of elastomeric materials.
- Tightness possibly at low surface pressure (even at low tightening torques).
- Resistant because of a wide array of rubber elastomers to choose from.
- The best possible coping with when the installation of the gasket.
- surfaces, as well as enameled and rubberized flange faces.
- Good adaptability to the sealing surface areas.

Rubber Type:

- EPDM.
- NBR.
- Neoprene.
- FKM Viton.

Steel Insert Type:

- **Standard:** Carbon Steel.
- **Optional:** Stainless Steel.

FLANGE ISOLATION GASKET KIT

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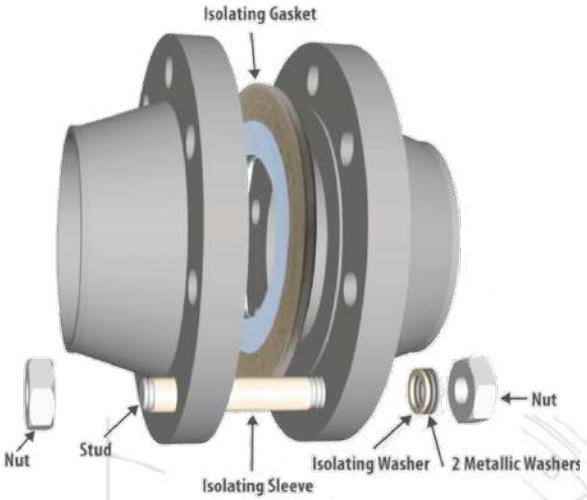
1. INTRODUCTION:



Flange Isolation Gasket Kits are essential components used to provide both effective sealing and electrical insulation at flange joints, helping to prevent leakage and control corrosion in piping systems. These kits are widely applied in oil and gas, water treatment, chemical processing, and offshore installations—particularly where cathodic protection and isolation from stray currents are required. By eliminating metal-to-metal contact, the kits reduce electrolytic corrosion and improve pipeline longevity.

Engineered for performance, these kits are suitable for raised-face, flat-face, and RTJ flanges across all pressure classes—including demanding services up to API 15,000 psi. Advanced designs feature pressure-activated sealing mechanisms that reduce the required bolt stress for sealing. Gasket inner diameters are precisely matched to flange bores to minimize turbulence, erosion, and flow restriction. Certain models also include reusable retainers with replaceable seal elements for extended service life.

Each kit typically includes an insulating gasket, insulating sleeves, and washers—available in single, double, or one-piece configurations. They are manufactured to meet recognized standards such as ANSI B16.5, API 605, and AWWA, and are offered in a wide variety of material combinations (e.g., G-10 retainers, Mylar sleeves) to suit environmental and operational conditions. All components are accurately sized and securely packaged in individual, durable corrugated boxes with clear labeling to prevent loss or misidentification during installation.

2. FEATURES AND BENEFITS

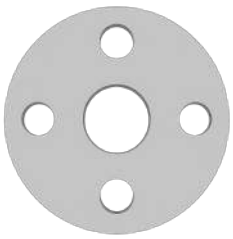
Features:

- **Electrical Isolation:** Prevents metal-to-metal contact, isolating flanges to stop stray electrical currents.
- **Leak Prevention:** Provides a secure, pressure-resistant seal at flange joints to eliminate leakage.
- **Corrosion Control:** Minimizes electrolytic corrosion caused by dissimilar metals and environmental factors.
- **Cathodic Protection Compatibility:** Enhances the performance of cathodic protection systems in pipelines.
- **Precision Manufacturing:** Components are sized precisely to fit standard flange types (ANSI, AWWA, API, etc.).
- **Wide Material Selection:** Available in materials such as G-10, phenolic, PTFE, Mylar, and more, tailored to various media and temperatures.
- **High-Pressure Performance**: Suitable for high-pressure services, including classes up to API 15,000 psi.
- **Multiple Configurations:** Offered in E, D and F gasket types, with single, double, or one-piece sleeve and washer options.
- **Custom Bore Matching:** Gaskets are designed to match flange bore diameters to reduce turbulence and erosion.
- **Durable Packaging:** Kits are packaged in sturdy, labeled boxes to ensure completeness and ease of installation.

Benefits:

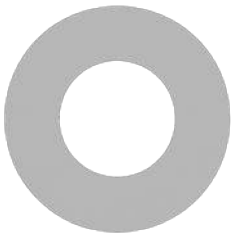
- **Extended Pipeline Life:** Reduces wear and corrosion, extending system service life.
- **Improved Safety:** Prevents leaks and corrosion-related failures, supporting safer operations.
- **Enhanced System Integrity:** Maintains seal effectiveness under thermal, chemical, and mechanical stress.
- **Simplified Maintenance:** Modular components like reusable retainers and replaceable seals lower long-term costs.
- **Versatile Applications:** Effective in a wide range of industries, including oil & gas, water treatment, chemical plants, and offshore platforms.
- **Compliance with Industry Standards:** Assures reliability and compatibility with standardized piping systems.

3. GASKET TYPES



Type E

Type E is a full-faced gasket with the same outside diameter as the flange and precision cut bolt holes. This design facilitates proper alignment of the gasket during installation. Type E gaskets are available in plain face or Neoprene face phenolic, as well as a variety of high temperature materials.



Type F

Type F gaskets are made to fit the raised face portion of the flange only. As there are no bolt holes in the F gasket, the outside diameter of the gasket falls within the inside diameter of the bolt hole circle. Available in the same materials as the type E gasket.

Type D

Type D gaskets are specifically designed to fit into the ring groove of ring type joint flanges. They are manufactured of a medium weave, fabric-reinforced phenolic material and are sized to ANSI specifications available in basic oval as well as octagonal shape. Also available as BX gaskets with pressure ratings to 15,000 psi.

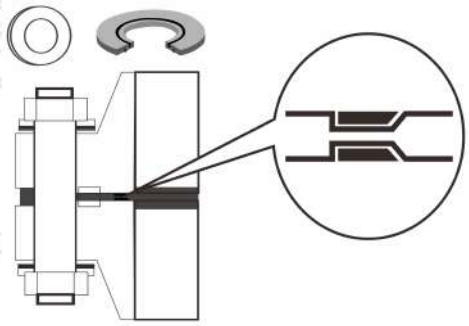
GASKET MATERIAL:

	Dielectric Strength (Volts/Mil)	Compressive Strength (psi)	Water Absorption (%)	Tensile Strength (psi)	Operating Temperature (°C)
Plain Phenolic	500	25,000	1.6	20,000	-54 ~ +104
Neoprene Faced Phenolic	500	25,000	1.6	20,000	-54 ~ +79
Reinforced PTFE	350	2,300	0.01	1,450	-196 ~ +260
G-7 Silicone Glass	350	40,000	0.07	25,000	-196 ~ +232
G-10 Epoxy Glass	550	50,000	0.1	45,000	-196 ~ +138
G-11 Epoxy Glass	550	50,000	0.1	43,000	-196 ~ +176
G-10 Bonded	550	65,000	0.05	50,000	-54 ~ +138
G-11 Bonded	550	50,000	0.085	45,000	-45 ~ +176

4. KITRIX® SEALING GASKETS

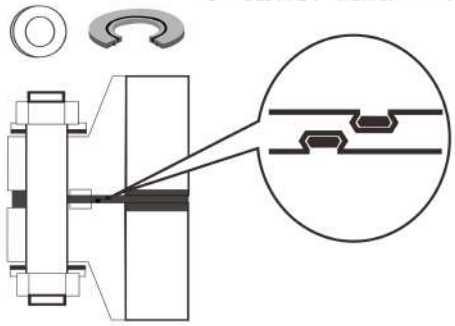
For reliable static sealing performance, the Kitrix® gasket is an essential component. It features an elastomer sealing element that is fully encapsulated within an electrically isolated retainer. Commonly used sealing materials include Nitrile® (operating temperature range: -40°C to 121°C), Viton® (-29°C to 177°C), and PTFE (-196°C to 232°C). This encapsulation design minimizes the sealing element's exposure to aggressive environments, chemicals, and corrosive fluids.

The precise containment of the elastomer sealing ring within the retainer enables a groove fill volume of approximately 92% to 94%. This allows for a consistently reliable pressure seal to be achieved without the need for excessive bolt loads. As a result, flange assemblies can utilize reduced thickness, smaller bolt circle diameters, and fewer or smaller bolt holes.



Special Type A:

Sealing gaskets adopt one of the most effective methods for sealing and insulating all types of flanges. The quad ring, a rectangular sealing element, encapsulated in a specially designed groove, it provides near Zero "m" and "y" factors, to make the controlled pressure seal can always be obtained without tremendous bolt loads.



Special Type B:

Is the excellent sealing and insulating design for all types of flanges. The sealing elements encapsulated in the specially designed groove to avoid breaking the sealing element when torque of the bolts is not equal.

SEALING ELEMENT MATERIAL:

Specifications	Nitrile	Viton	PTFE	Neoprene	EPDM
Operating Temperature (°C)	-40 ~ +121	-29 ~ +177	-196 ~ +232	-40 ~ +121	-40 ~ +121

Please attention the retainer & sealing elements' temperature limits, should be considered together while choosing the material.

5. INSULATING SLEEVES

Insulating sleeves are available in a full range of American bolt sizes as well as other international standards to accommodate various flange configurations. Designed to ensure electrical isolation and prevent galvanic corrosion, these sleeves can be supplied as one-piece integral units that combine both the sleeve and washer into a single component for streamlined installation and enhanced reliability. This versatile offering supports both standard and custom applications, ensuring compatibility across a wide spectrum of piping systems and flange assemblies.

Insulating Sleeves are available in the following materials:

- Mylar.
- Nomex.
- G10 Epoxy Glass.
- G11 Epoxy Glass.
- Mica.

Specifications	Mylar	Nomex	G10	G11	MICA
Dielectric Strength (Volts/Mil)	4,000	400	550	550	305
Water Absorption (%)	0.8	N/A	0.1	0.1	1.0
Flexural Strength (psi)	13,000	20,000	55,000	55,000	29,000
Operating Temperature (°C)	-59 ~ +149	-54 ~ +232	-196 ~ +150	-196 ~ +200	-200 ~ +700

6. INSULATING & STEEL WASHERS

Insulating and steel washers serve to electrically isolate bolts from the flange, thus interrupting the electrical path and protecting against stray currents and electrochemical degradation. The insulating washers are available in a variety of materials, each offering distinct performance characteristics to meet specific environmental and operational requirements.

1. Insulating Washers are available in the following materials:

- G10 Epoxy Glass.
- G11 Epoxy Glass.
- Mica.

Specifications	G10	G11	MICA
Dielectric Strength (Volts/Mil)	550	550	635
Water Absorption (%)	0.1	0.1	1.0
Compressive Strength (psi)	50,000	50,000+	57,500
Operating Temperature (°C)	-196 ~ +150	-196 ~ +200	-200 ~ +700

2. Steel Washers are available in the following materials:

- Zinc Plated Steel (ZPS)
- Stainless Steel Washer (SS)
- Hardened Coating Steel Isolating Washers (HCS)
- Xylan coated Carbon Steel (XPS)

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