

# Commander RJ Isolation Kit

## PRODUCT

### Commander Basic & Basic RJ Isolation Kit

#### PRODUCT USAGE

#### Economic Flange Isolation For Mild Services

Commander Basic Isolation Kit is a proven system for low cost applications at low pressures and temperatures.

#### BASIC GASKET

The carrier provides isolation of the two flanges and is produced from phenolic sheet providing dielectric strength and rigidity, with thin Nitrile layers glued to each sealing face. The gasket seals in a conventional manner under limited compression from bolt force. Sealing is provided by the Nitrile layers which provide limited oil and chemical resistance.



#### Product Information

Gasket Thickness <b>3.2MM</b>	Maximum Rating <b>Class 300</b>	Maximum Diameter <b>1500 MM</b>
Minimum Temperature <b>-50°C</b>	Maximum Temperature <b>+80°C</b>	Recommended Flange Surface Finish <b>3.2 - 6.3 Ra</b>

<b>Formats Available</b> <b>Type E</b> Carrier Extends Across The Face Offlange Including Bolt Holes <b>Type F</b> Carrier Extends To The Inside Of The Bolt Circle
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<b>Flange Type</b> <b>Raised Face</b> <b>Flat Face Only</b>
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#### BASIC RING JOINT

A solid ring joint machined from phenolic sheet generally to the ASME or API ring dimensions for steel rings. supplied in oval or octagonal cross sections, the effective operation of the gasket is limited by temperature and a very low compressive strength. The phenolic sheet or gre g10/ gre g11 material seal is achieved by deforming the ring. PG Sealing recommends the use of COMMANDER SE or EXTREME GASKETS for all RTJ flanges.



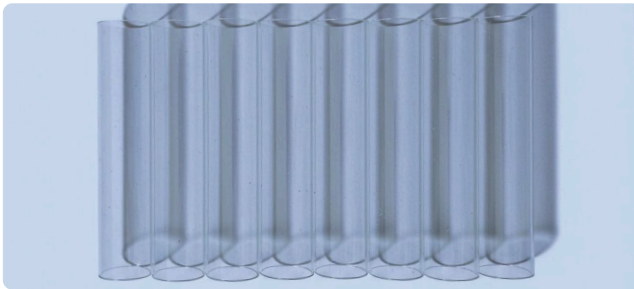
#### Product Information

Maximum Rating <b>Upto 2500#</b> <small>Based On Material Grade</small>	Maximum Diameter <b>400 MM</b>	Formats Available <b>Type D Ring Joint</b>
Minimum Temperature <b>-50°C</b>	Maximum Temperature <b>+200°C</b>	Flange Type <b>RJ Flange Only</b>

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## ISOLATION SLEEVES

Isolate the stud bolts from the flanges. Material selection is determined by the service temperature and choice of carrier and seals.



### Product Information

#### Mylar

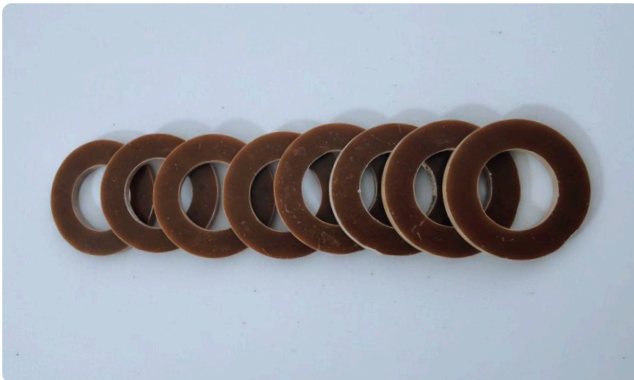
Wall Thickness  
**0.75 MM**

Minimum Temperature  
**-54°C**

Maximum Temperature  
**+150°C**

## ISOLATION WASHERS

Isolate the nut from the flanges and operate with the isolation sleeve. Key properties are compressive strength to resist stud tightening, dielectric strength and fire resistance.



### Product Information

#### Phenolic

Wall Thickness  
**3.2 MM**

Minimum Temperature  
**-50°C**

Maximum Temperature  
**+10  
0°C**

Compressive Strength  
**25,000 PSI**

## BACKUP WASHERS

Sit between the nut face and the isolating washer. their function is to protect the isolating washers from the torque effect of the nut and to ensure an even transfer of force.



### Product Information

#### Zinc Plated Steel

Thickness  
**3.2 MM**

# Commander RJ Isolation Kit

## KIT CONTENTS

Each kit contains everything necessary to isolate a standard flange.



## Product Information

Isolating & Sealing Gasket  
**1 Per Kit**

Isolating Sleeves  
**1 Per Bolt**

Isolating Washers  
**2 Per Bolt**

Backup Washers  
**2 Per Bolt**

## TECHNICAL DATA SHEET

This data sheet provides a detailed comparison of the key mechanical and electrical properties for various non-metallic insulating materials used in industrial components. The data is essential for engineers, designers, and procurement specialists to select the appropriate materials for specific applications, particularly for flange isolation and sealing in piping systems.

Test Method	Measuring	Carrier & Washers	Sleeve & Washers		Sleeve Only	Washers Only
--	--	Phenolic	GRE G 10	GRE G11	MYLAR	Zinc Plated Steel
ASTM D149	Dielectric Strength	500 Volt/Mil	750 Volt/Mil	550 Volt/Mil	4,000 Volt/Mil	65,000 PSI
ASTM D695	Compressive Strength	25,000 PSI	65,000 PSI	63,000 PSI	--	50,000 PSI
ASTM D570	Water Absorption	1.50%	0.05%	0.10%	0.80%	--
ASTM D790	Flexural Strength	22,500 PSI	65,000 PSI	60,000 PSI	13,000 PSI	--
ASTM D256	Izod Impact Strength	1.2 Ft/Lbs Inch	14 Ft/Lbs-Inch	12 Ft/Lbs-Inch	--	--
ASTM D638	Tensile Strength	20,000 PSI	50,000 PSI	42,000 PSI	--	--
ASTM D732	Shear Strength	10,000 PSI	21,000 PSI	21,000 PSI	--	--
ASTM D952	Bond Strength	1,500 PSI	2,600 PSI	2,200 PSI	--	--

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ASTM Test	Test Method	GRE G 10	GRE G11	Phenolic	Comment: GRE Over Phenolic
ASTM D149	Dielectric Strength	800 Volt/Mil	550 Volt/Mil	500 Volt/Mil	Resistance To Electrical Current
ASTM D695	Compressive Strength	65,000 PSI	63,000 PSI	25,000 PSI	Ability To Resist Crushing Forces Of Bolt
ASTM D570	Water Absorption	0.05%	0.10%	1.50%	Impermeability
ASTM D790	Flexural Strength	65,000 PSI	60,000 PSI	22,500 PSI	Resisting Fracture When Unevenly Loaded
ASTM D256	Izod Impact Strength	14 Ft/Lbs-Inch	12 Ft/Lbs-Inch	1.2 Ft/Lbs Inch	Resistance To Expansion/Contraction Of System
ASTM D638	Tensile Strength	50,000 PSI	42,000 PSI	20,000 PSI	Resistance To Delamination Under Pressure
ASTM D732	Shear Strength	21,000 PSI	21,000 PSI	10,000 PSI	Resisting Fracture When Unevenly Loaded
ASTM D952	Bond Strength	2,600 Lb	2,200 Lb	1,500 Lb	Structural Resistance To Pressure
--	Min   Max Temperature	-150°C   +150°C	-73°C   +200°C	-54°C   +104°C	General Service

## General Material Notes

### GRE Standards

**Glass Reinforced Epoxy (GRE)** is widely used in the electronics industry (e.g., computer motherboards). The international quality standard is **NEMA L1-1**, which sets minimum physical standards.

### GRE Durability

**GRE G10 & GRE G11** are extremely tough materials that do not lose physical properties over time (25–30 years).

### Phenolic/Bakelite Issues

- Bakelite is a phenolic resin with a reinforcing fabric, but there are no international quality standards for its use within an isolation kit.
- Quality is highly variable; the inclusion of cotton or paper fibers makes the material very absorbent, which reduces dielectric strength and weakens the material.
- The material is extremely brittle.

### Commander Gaskets Extreme Capabilities:

- Can be used on **Raised Face (RF)** and **Ring Joint (RJ)** flanges.
- Capable of joining **RJ to RF flanges**.
- **Bolt Load:** The required bolt load is much lower than for RJ or Spiral Wound gaskets, making flanges less likely to be damaged.
- **Corrosion:** The seal is close to the bore of the pipe, reducing corrosion on the flange inside diameter

### Installation & Sizing Notes

- **Fit:** Commander Isolation Kits fit any standard flange without modification.
- **Metric vs. Imperial:** You must specify if using metric bolts within an imperial-sized flange.
- **Clearance Warning:** The nearest equivalent metric bolt can, in some cases, close out the space required for the isolating sleeve. This is illustrated with sketches showing Imperial Bolts (7/8" diameter) vs Metric Bolts (M25 diameter) in a 1" (25.4mm) bolt hole.

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