

FLANGE INSULATING GASKET



API 6A
Licence No.
6A-0722
Certification
ISO 9001 : 2015
ISO 14001 : 2015
OHSAS 45001 : 2018



“RISK FREE GASKETS ON TIME”

ABOUT US

Goodrich Gasket Private Limited is acknowledged as the market leader in manufacturing & supply of High - performance Industrial Static Sealing Products for the Global Processing Industries. Goodrich Gasket is currently manufacturing and supplying the entire range of Industrial Gaskets from its 25,000 Sq.m state of the art brand new facility at Chennai, India. Founded in 1987, the company has more than 3000 satisfied customers worldwide. "At Goodrich Gasket, we Design, Manufacture, Supply, Install, and give On-Site support for all of your Gasket needs and Concerns."

OUR STRENGTHS

- 24X7 operational facility to meet customer's emergency and shut down requirements.
- Proven track record with reliability and high Gasket Performance.
- Experience in manufacturing Gaskets for over three decades by investing in modern manufacturing technology.
- Complete control over all critical processes, including raw materials.
- Preferred partner of reputed oil majors and EPC contractors.
- Highly skilled engineers for designing products with optimal performance & ability to design products with special requirements.
- Customized product development - working closely with the user groups.
- Quality Assurance Program - Approved by Major EPC, PMC & PSUs.
- Wide distribution network - Over 3000 Satisfied Customers Worldwide.
- Availability of Gaskets in various locations, including back up inventory at factories.

OUR CLIENTS



GOODRICH FLANGE INSULATING GASKET

Overview

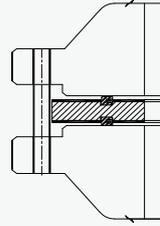
Goodrich's Flange Insulation Kits are the most widely used to control stray electric currents in piping in Oil and Gas Industries, Water, Refinery, and Chemical Plants to increase the effectiveness of cathodic protection systems, confine or eliminate. Flange Insulation Kits are commonly used on offshore installations, seawater environments, chemical installations, oil refinery pipelines where galvanic corrosion protection and electrical insulation are required.

Goodrich Flange Insulation Gasket Kits are designed & manufactured to ensure complete electrical insulation of a flanged assembly. The Insulation Kits consist of one full-length insulating sleeve, two insulating washers and two steel washers for each of the bolts in the flange assembly. The purpose of the insulating sleeves is to electrically separate the bolts from each side of the flange, while the insulating washers provide electrical insulation for each of the nuts attached to the bolts. This method of insulation provides the user with a high-reliability solution to complete the electrical insulation of a flanged joint.

The Flange Insulation Gaskets and Kits are sized according to the relevant flange specification including ANSI, API, DIN, BS, AS, MSSP, etc.,

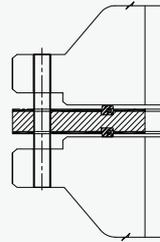


GOODRICH TYPE F



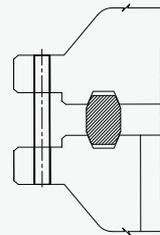
Type 'F' Gaskets are made to fit the raised face portion of the flange only. As there are no bolt holes in the F gasket, the outside diameter of the gasket falls within the inside diameter of the bolt hole circle.

GOODRICH TYPE E (FULL FACE FLANGES)



Type 'E' Gasket is a full-face 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 the plain face or as well as a variety of high-temperature materials.

GOODRICH TYPE D (RING JOINT FLANGES)



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

Advantages of Insulating Gasket

- Can be utilized with mismatched flanges
- Can be utilized with misaligned flanges
- Can be used in place of RTJ rings
- Little initial torque required
- No re-torquing required
- The sealing ring cannot be left out
- Seal design tested for high pressures
- Limited area of seal exposed
- Greatly reduces human error during installation
- Compensates for pressure fluctuations, compression changes, vibrations, temperature, etc.

Application Areas

- Flange insulation in conjunction with cathodic protection
- Wellhead isolation from inter-connected flow lines
- Valve connections
- Pump connections
- Compressor connections
- Mating mismatched ring-joint to raised-face flanges
- Insulation between dissimilar metals to prevent galvanic corrosion
- Tanks and heat exchangers with sacrificial anodes to increase anode life

GOODRICH TYPE CS

Goodrich's Type "CS" flange insulating gasket kits are specially designed for flange sealing and insulating in all critical services. It is suitable for raised-face, flat-face, and RTJ flanges in all pressure classes and even API 15,000 psi service. The Goodrich Style "CS" gasket has been used all over the world because of its superior sealing characteristics and excellent dielectric properties.

The Gasket material incorporates high-strength, glass-reinforced epoxy laminated bonded to a stainless steel core. It 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 that provides a strong base for the seal to seat into and breaks the potential leak path inherent in glass laminate materials.

Features & Benefits

- Extremely high reliability sealing and insulating for all critical services
- Seals and insulates at all pressures up through ANSI 2500# and API 10,000#
- Withstands severe service conditions, including large bending moments, vibration, temperature, and pressure cycling.
- Outstanding isolating properties for cathodic protection, galvanic corrosion, and other pipe system isolation needs.
- Pressure activated for reliable sealing and eliminating costly leaks
- Precisely sized to the bore to protect flange faces and prevents turbulent flow at flanged
- Goodrich can match the ID of any flange assembly which can greatly mitigate the effects of flow induced corrosion, erosion, and MIC common of other types of gaskets used in piped flange connections
- Insulating Kits (sleeves and washers) always include high strength double washers and full-length sleeves for maximum assurance against short circuits
- High strength laminate material resists failure due to excess compression (i.e., over tightening bolts)
- Spring energized PTFE seal provides radial load and encapsulation in the seal groove to eliminate cold flow
- Available to match any flange specification (ANSI, API, BS, DIN, AS, others)
- Can seal mismatched RTJ Flange with Raised Face Flanges

GOODRICH TYPE CS

Material Properties

Primary Seal Types: PTFE

Laminate Layer: G7, G10, G11, Phenolic

Steel Core: 316/316LSS, 625/825 Inconel, Duplex/Super Duplex

Insulating sleeves: G7, G10, G11, Mylar, Phenolic

Insulating washers: G7, G10, G11, Mylar, Phenolic

Metallic Washers: Stainless Steel, Zinc Plated CS Washer

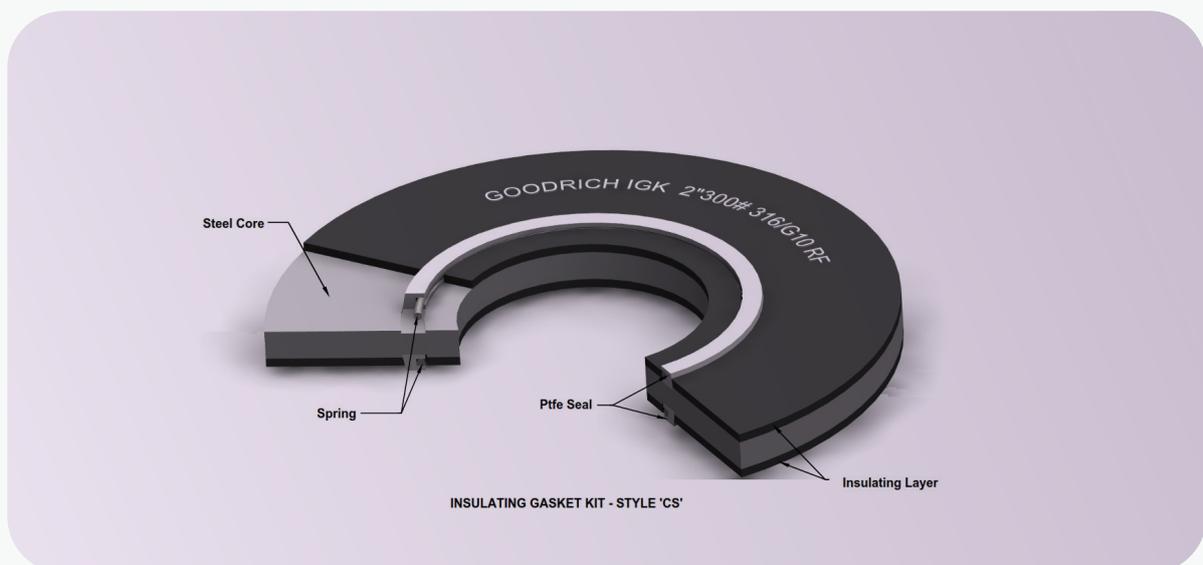
Gasket Properties

Fluid Services: Oil and Gas

Maximum Pressure Class: ASME 2500#/API 15,000#

Water Absorption (%): ASTM D570 0.10

Dielectric Strength (V/mil): 800



GOODRICH **TYPE FCS**

Goodrich Type “FCS” insulating gasket set is a fire-safe Insulation gasket that is a tight seal technology that limits hydrocarbon releases and the spread of fire. It is suitable for mis-matched RTJ to RF flanges and can also be used for non-critical applications. This gasket is rated to 205°C operating temperature with zero leakage in API 6FB fire tests up to 1500°F. Goodrich Type ‘FCS’ is specially designed for cathodic protection and ensures a high level of mechanical integrity.

Features & Benefits

- Extremely high reliability sealing and insulating for all critical services
- Withstands severe service conditions, including large bending moments, vibration, temperature and pressure cycling
- Tackles corrosive environments, including high concentrations of CO₂, H₂S, produced water, etc.
- Outstanding insulation properties for cathodic protection
- Pressure activated for reliable sealing and eliminating costly leaks
- Precisely sized to the bore to protect flange faces from media-induced corrosion and flow-induced erosion. Prevents turbulent flow at flanged connections
- Goodrich can match the ID of any flange assembly which can greatly mitigate the effects of flow induced corrosion, erosion, and MIC common of other types of gaskets used in piped flange connections
- Mitigates galvanic corrosion in dissimilar metal flanges
- Insulating Kits (sleeves and washers) always include high strength double washers and full-length sleeves for maximum assurance against short circuits
- High strength laminate material resists failure due to excess compression (i.e., over tightening bolts)
- Spring energized PTFE seal provides radial load and encapsulation in the seal groove to eliminate cold flow
- Available to match any flange specification (ANSI, API, BS, DIN, AS, others)
- Can seal mismatched RTJ Flange with Raised Face Flanges

GOODRICH TYPE FCS

Material Properties

Primary Seal Types: PTFE

Secondary Seal: MICA

Laminate Layer: G10, G11, Mica

Steel Core: 316/316LSS, 625/825 Inconel, Duplex/Super Duplex

Insulating sleeves: G10, G11, Mica

Insulating washers: G10, G11, Mica

Metallic Washers: Stainless Steel, Xylan Coated CS Washer

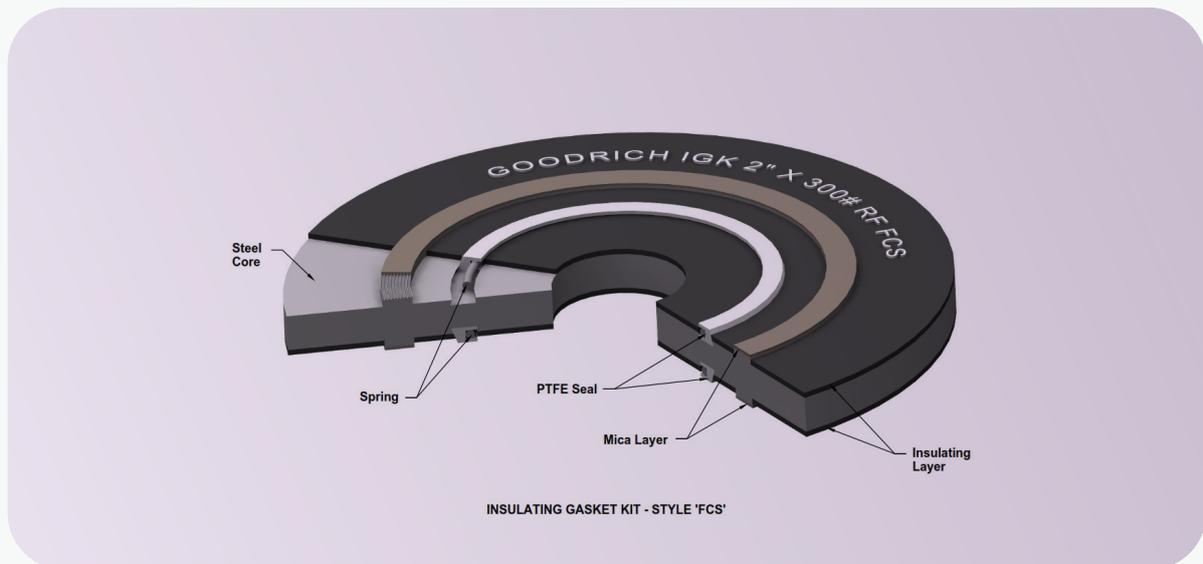
Gasket Properties

Fluid Services: Oil and Gas

Maximum Pressure Class: ASME 2500#/API 5,000

Water Absorption (%): ASTM D570 0.10

Dielectric Strength (V/mil): 800



GOODRICH TYPE N

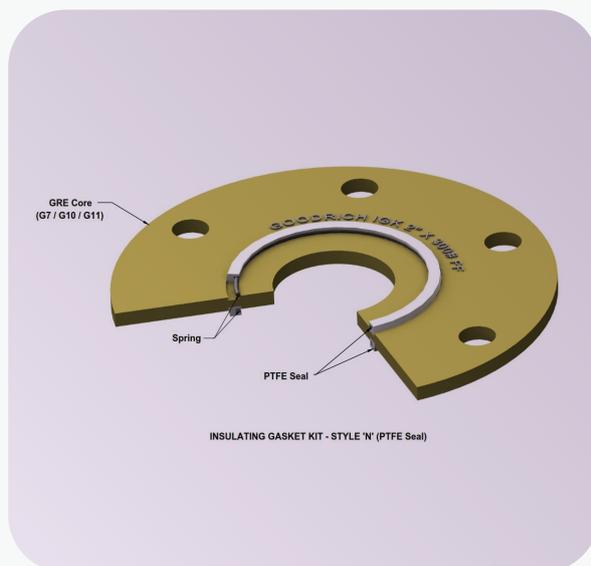
Goodrich Style 'N' is ideal for electrical flange isolation and general sealing applications. It is suitable for use in raised face flanges up to ANSI class 600. Style 'N' is made from rigid Glass Reinforced Epoxy laminates, which exhibit superior sealing abilities and excellent dielectric and high compressive strength. Materials such as PTFE is therefore used as sealing elements, dramatically increasing the ability to match gasket materials to service conditions.

Features & Benefits

- Guards against blowouts
- Usable with virtually any type of flange
- Matches gasket materials to service conditions
- Lowest possible clamp and compressive load

Applications

- An excellent choice for isolating distribution lines and transport lines for gas, oil, and water.
- Goodrich Type 'N' gaskets have very good resistance to creep relaxation, it performs well in heat exchanger applications with high vibration or excessive thermal cycling.



Materials Properties

Primary Seal Types: PTFE, Viton

Core: G7, G10, G11, Mica

Insulating sleeves: G7, G10, G11, Mylar, Phenolic, Mica

Insulating washers: G7, G10, G11, Mylar, Phenolic, Mica

Metallic Washers: Stainless Steel, Zinc Plated CS washers

GOODRICH TYPE D

The Ring Joint Insulation gaskets are manufactured in Non-metallic material and are sized to ANSI specifications available in a basic Oval as well as an Octagonal shape. Also available are BX gaskets with pressure ratings of 15,000 psi. The insulation kit ensures the interruption of electrical continuity between adjacent flanges isolating each component, preventing galvanic or electrochemical corrosion processes. It prevents contact between two materials that have different electric potential, without interfering with the proper tightening of flanges.

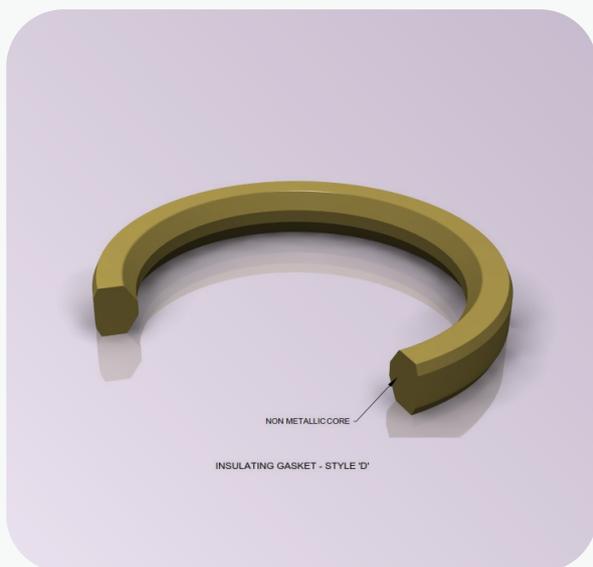
Goodrich - Type "D" Flange Insulating Gasket Kit is designed to use ring-type-joint flanges with one insulation gasket suitable for fit into the ring groove, an insulation sleeve for each bolt, a couple of insulating and steel washers for each bolt.

Features & Benefits

- Guards against blow outs
- Usable with any type of flange or combination of flanges
- Lowest possible clamp and compressive load to effect a seal
- High dielectric strength 800 v/mil
- Water absorption less than 0.10%

Applications

- Potable water and other fluids



Materials Properties

Core: G7, G10, G11

Insulating sleeves: G7, G10, G11, Mylar, Phenolic

Insulating washers: G7, G10, G11, Mylar, Phenolic

Metallic Washers: Stainless Steel, Zinc Plated CS Washers

Gasket Properties

Fluid Services: Oil and Gas

Maximum Pressure Class: ASME 2500#

Water Absorption (mg): 3

Dielectric Strength KV: 10

GOODRICH TYPE RUBBER COATED

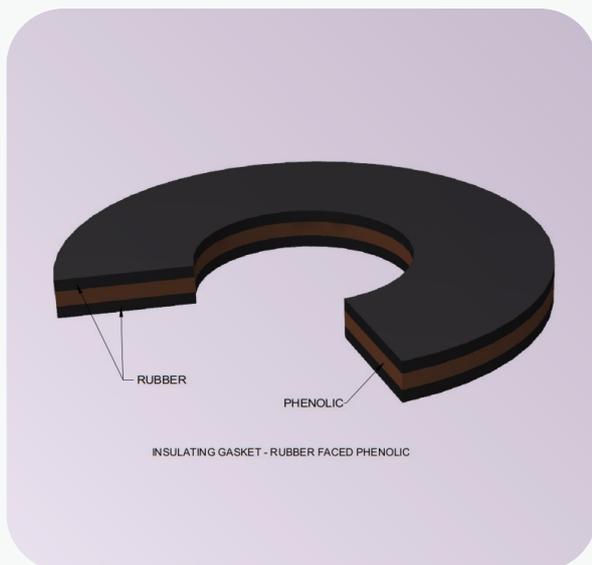
Goodrich Type Rubber Coated Flange Insulating Gaskets are coated with a nominal Rubber (Like Nitrile, Neoprene, EPDM, etc.) coating on each side of the Phenolic core from the ID to the OD of the gasket. All contact areas of the gasket are effectively a sealing point. The gasket requires more load to seal than a Goodrich Type "N" Flange Insulating Gasket, but will perform well where pitted flanges, warped flanges or non-parallel flanges (such as non-metallic flanges with molded, concentric convex rings) exist.

Features & Benefits

- Great for Potable & Non-potable water applications
- Great for non-metallic flanges

Applications

- Potable & Non-potable water
- Utility gas applications
- Aliphatic hydrocarbons



Materials Properties

Layer Material: Neoprene, EPDM, Nitrile Etc.

Reinforced Material: G7, G10, G11

Insulating sleeves: G7, G10, G11, Mylar, Phenolic

Insulating washers: G7, G10, G11, Mylar, Phenolic

Metallic Washers: Stainless Steel, Zinc Plated CS

Washers

Gasket Properties

Fluid Services: Water, Oil, and Gas

Maximum Pressure Class: ASME 600#

Water Absorption (%): 1.6

Dielectric Strength (V/mil): 500

Specifications

Flange Insulating Kit

INSULATING GASKET SPECIFICATIONS						
	G10	G11 With Steel Core	G7	Plain Phenolic	Neoprene Faced Phenolic	PTFE
Dielectric strength (Volts/Mil)	550	550	350	500	500	350
Compressive strength (psi)	50000	50000	40000	25000	25000	23000
Water absorption (%)	0.1	0.1	0.07	1.6	1.6	0.01
Tensile strength (psi)	45000	43000	25000	20000	20000	1450
Operating temp (°C)	-196 to +150"	-196 to +200	-196 to +232	-54 to +104	-54 to +79	-196 to +260

Washers, Sleeve and Sealing Material

WASHER MATERIAL PHYSICAL PROPERTIES						
	Phenolic	G7	G10	G11	Mica	Phenolic
Dielectric strength (Volts/Mil)	500	350	550	550	635	500
Compressive strength (psi)	25000	40000	50000	50000	58000	25000
Water absorption (%)	1.6	0.07	0.1	0.1	0.5	1.6
Operating temp (°C)	-54 to +104	-196 to +232	-196 to +150	-196 to +200	800	-54 to +104

SLEEVE MATERIAL PHYSICAL PROPERTIES						
	Mylar	G7	G10	G11	Mica	Phenolic
Dielectric strength (Volts/Mil)	4000	350	400	400	635	500
Water absorption (%)	0.8	0.1	0.1	0.1	0.1	1.1
Operating temp (°C)	-59 to +149	-196 to +232	-196 to +150	-196 to +200	600	-54 to +104

SEALING MATERIAL PHYSICAL PROPERTIES					
Material	VITON	NBR	EPDM	PTFE/PTFE with Spring Energized	MICA
Operating temp (°C)	-29 to +170	-54 to +121	-54 to +150	-196 to +260	800

*Properties shown throughout this specifications are typical. Your specific application should not be undertaken without independent study and evaluation for suitability. For specific application recommendations consult Goodrich Engineering Department.

Torque Values Flange Insulating Kit

Torque Table for Isolating Gaskets - ASME B16.5 and B16.47 Flanges								
NPS	150#	300#	400#	600#	900#	1500#	2500#	NPS
ASME B16.5 Recommended Values in [ft-lb]								
½	30	30	30	30	30	95	96	½
¾	30	55	55	65	95	96	95	¾
1	30	55	55	55	155	155	166	1
1 ¼	30	55	55	55	155	156	230	1 ¼
1 ½	30	05	95	95	230	230	335	1 ½
2	55	55	55	55	155	150	230	2
2 ½	55	95	95	95	230	230	335	2 ½
3	55	95	95	95	155	335	470	3
3½	55	95	155	155	-	-	-	3½
4	55	95	155	155	335	470	840	4
5	95	95	155	230	470	840	1370	5
6	95	95	155	230	335	640	2080	6
8	95	155	230	335	640	1086	2080	8
10	155	230	335	470	640	1700	4165	10
12	156	335	470	470	640	2080	6595	12
14	280	335	- 470	640	840	3005	-	14
16	200	470	640	840	1085	4165	-	16
18	335	470	640	1085	1700	5596	-	18
20	335	470	840	1085	2080	7320	-	20
22	470	840	1085	1370	-	-	-	22
24	470	840	1370	1700	4165	11765	-	24
ASME B16.47								
26	470	1085	1370	1700	5595	-	-	26
28	470	1085	1700	2080	7320	-	-	28
30	470	1370	2080	2080	7320	-	-	30
32	840	1700	2080	3005	9370	-	-	32
34	840	1700	2080	3005	11765	-	-	34
36	840	2080	2080	4165	11765	-	-	36
38	840	840	1370	3005	11765	-	-	38
40	840	1085	1700	3005	11765	-	-	40
42	840	1085	1700	4165	11765	-	-	42
44	840	1370	2080	4165	14540	-	-	44
46	840	1700	2080	4165	17720	-	-	46
48	840	1700	3005	5596	17720	-	-	48
50	1370	2080	3005	7320	-	-	-	50
52	1370	2080	3005	7320	-	-	-	52
54	1370	3006	4165	7320	-	-	-	54
56	1370	3005	4165	9370	-	-	-	56
58	1370	3006	4165	9370	-	-	-	58
60	1370	3005	6596	11765	-	-	-	60

NOTES:

1. All values are calculated assuming a 0.11 coefficient of friction and new nuts and studs using non-metallic lubrication.

2. "M" maintenance factor = 0 "Y" minimum design seating stress = 7500 [psi]. For EVOLUTION isolating gasket "Y" = 0.

3. Recommended values are based on 30,000 psi bolt stress.

NOTE: On isolating testing - any isolation testing should be completed prior to hydro testing in order to prevent media in line from causing false readings. It is suggested that isolation be checked with the use of an RF meter as per NACE SP0288-2007 standard practice.

It should be noted that humidity and other environmental effects can cause false isolation readings.

For additional assistance please contact our Engineering Department



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