Isolation Gasket technical spec

The gasket and its components for use on pipes containing water, aqueous fluids, oil, or natural gas, shall be manufactured as follows.

The gasket shall provide isolating and sealing between two flanged connections. The gasket, Integra II SSAFS, has an uncompromised thickness and 274° compressed thickness, with a 316 Stainless Steel core and NEMA grade G-10 or G-11 fiberglass reinforced laminate permanently bonded to both sides, shall contain a precision machined grooves to provide a controlled compression of an engineered PTFE, spring energized. The PTFE felt shall be bonded as an integral part of the gasket to the core.

Isolation Gasket Kit

Coated, Stainless Steel Washers

Accompanying the Integra II SSAFS Isolation Gasket are our hardened-steel isolation washers coated with our unique and highly durable, proprietary coating. This coating exhibits exceptional dielectric strength and is tough enough to withstand the required high pressure. These washers also contain precision machined and PTFE coated kammprofile serrations on both sides, which can be used on any face flange. The kammprofile serrations on the core side shall provide Fire Safe protection for either flat, raised or RTJ face flanges. The fiberglass reinforced laminate shall have a dielectric strength of 800 V/mil (G-11: 550 V/mil) and a maximum compressive strength of 66,000 psi (G-11: 58,000 psi). The gasket ID shall have a diameter that matches the flange ID in which it is installed. The gasket shall have a max compressing temperature of 152°F with G-10 laminate (400°F with G-11).

Mechanical Properties

1. Steel Washer

Material per ASTM F 436

Hardness: HRC 38 - 45

2. Coating:

a. Durable, proprietary blend to provide excellent corrosion resistance along with exceptional resistance to abrasion and scraping.

b. Low Coefficient of Friction

c. Chemical Strength: 700 V/mil

d. Minimum Operating Temperature: -100°F

e. Maximum Operating Temperature: 450°F

ISO-9001:2015 Certified Company

Made in USA


1. Flange Specification

(American, ASME, MSS SP44, BS or Din Standard)

2. RTJ or Raised Face

3. Nominal Pipe Size, Pressure Rating and Bore Size

4. Operating Pressure, Temperature and Media

5. G-10, G-11, Mylar, or Nomex Sleeve Material

OTHER PRODUCTS AVAILABLE:

• Standard Isolating Gasket Kits

• Universal® Flange Protectors

• Radiate® Nut & Bolt Protector Caps

• Casing Spacers and End Sleeves

• Innerlynx Modular Mechanical Seals

• Monolith® Isolators

• Foreman Nite Caps - temporary pipe plugs

• Ultrabond® & Atlas Pipe Support® Pads

Note: Please contact your distributor or the factory for prices.

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Made in USA

In model II SSAFS®

Made in USA

INTEGRAl II SSAFS®

CATHODIC ISOLATION GASKEtS
**What is Integra II SSAFS® Gasket & Why Is It used?**

The new SSAFS gasket combines the proven characteristics of a kammprofile design with a highly dielectric mineral seal as the secondary seal. The core of the gasket is 316SS with permanently bonded insulating glass laminates adhered to both faces.

**Features & Benefits:**

1. Exceptionally dependable for critical Fire Safe Applications
2. Flange Isolation with true cathodic protection.
3. Isolating between flanges of dissimilar metals to prevent galvanic corrosion.
4. Nomex - A dielectric strength of 550 V/mil, and has generally fair resistance to crushing, cracking, and breaking.
5. G-10 - Glass-Reinforced Epoxy tubing is suitable for continuous exposure to 350° F. This material is an epoxy laminate that offers excellent resistance to crushing, cracking, and breaking.
7. Standard PTFE Seal Material: PTFE spring energized designed for multiple applications. The PTFE spring energized seal element is manufactured from a special formulated PTFE material which is pre-stretched in a circular area to maintain a constant seal.

**Applications:**

1. Critical Fire Safe Applications
2. Flange Isolation with true cathodic protection.
3. Isolating between flanges of dissimilar metals to prevent galvanic corrosion.
4. Wellisolated from inter-connected flow lines.
5. Mixing mitigated disimilar flanges.
6. Eliminate turbulence and flow-induced erosion between ring joint (RTJ) flanges.
7. Protect against corrosion on uncoated or scarred flange faces.
8. To seal between flanges subjected to vibration/cavitations.

**Test Fire Report**

**API Spec 608 Test Method**

<table>
<thead>
<tr>
<th>Test Condition</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
<td>1000° F</td>
</tr>
<tr>
<td>Pressure</td>
<td>1000 PSI</td>
</tr>
<tr>
<td>Duration</td>
<td>15 minutes</td>
</tr>
</tbody>
</table>

**High Temperature Secondary Seal Material Specifications**

<table>
<thead>
<tr>
<th>Material</th>
<th>Temperature Range</th>
<th>Insulating Sleeve Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glass Reinforced PTFE</td>
<td>-425° F to 450° F</td>
<td><strong>Flexural Strength</strong>: 58,000 PSI</td>
</tr>
<tr>
<td>Glass Reinforced Epoxy</td>
<td>-425° F to 450° F</td>
<td><strong>Flexural Strength</strong>: 66,000 PSI</td>
</tr>
<tr>
<td>Glass Reinforced Ceramic</td>
<td>-425° F to 450° F</td>
<td><strong>Flexural Strength</strong>: N/A</td>
</tr>
</tbody>
</table>

**API 608 Test Procedure**

The API 608 test is designed to measure the leakage from a flanged connection over the duration of burn and cool down periods, and to re-pressurized. The assembly is monitored during the test, and it must not exceed an API prescribed leakage rate.

**During the test, a fire is applied by a series of burners directing fire onto the assembly while it is pressurized.** The flame temperature is monitored by a series of thermocouples inside the flange and the fire temperature is monitored by various optical sensors measuring the 12" and 16" of carbon steel. The test requires the assembly to be pre-pressurized to 1000# before the fire is applied. The temperature of the cabinet blocks to reach an average temperature of at least 1200° F within 15 minutes of the period. After the 1200° F minimum is reached, the temperature must be maintained above this point for the remainder of the burn period.

At the end of the 30 minute burn period, the fire is shut off, and the assembly is allowed to cool while maintaining pressure. Once the assembly has cooled to 212° F or less, it is then re-pressurized for a minimum of 3 minutes.

API 608 Test Performance

- **No leakage observed**
- **Temperature maintained above 1200° F**
- **Burn period completed successfully**

**Conclusion:** The SSAFS gasket successfully passed the API 608 test, demonstrating its effectiveness in maintaining a constant seal in the event of a fire.
**WHAT IS INTEGRA II SSAFS® GASKET & WHY IS IT USED?**

The Integra II SSAFS® Gasket is a non-metallic isolating gasket that can also withstand high temperatures, making it ideal for high-temperature applications. The SSAFS was built upon the proven quality and durability of the INTEGRA gasket lineup, with the damaging effects of a fire. The SSAFS was designed to provide extended isolation across a high-temperature mineral seal as the secondary seal. The core of the SSAFS lineup is a non-metallic isolating gasket that can also withstand high temperatures, making it ideal for high-temperature applications. The SSAFS was built upon the proven quality and durability of the INTEGRA gasket lineup. The SSAFS is suitable for use in all services up to and including ANSI 2500# and API 10,000# classes. Isolation Kits are available, which include the SSAFS gasket along with glass laminates adhered to both faces.

**FEATURES & BENEFITS:**

1. Incorporates high temperature epoxy laminate that offers excellent resistance to crushing, cracking, and breaking. Designed for general oil and gas applications: This sealing material is used for maintaining a durable seal in the event of a fire.
2. Spiral wound Nomex tubing is suitable for continuous exposure to 450 °F. This material has a dielectric strength of 635 V/mil, and has generally fair resistance to crushing, breaking, and thread pinch.
3. G-11 - Glass Reinforced Epoxy tubing is suitable for continuous exposure to 400 °F. This material is an epoxy laminate that offers excellent resistance to crushing, cracking, and breaking. The steel washer is made from Grade 1050 and hardened-steel isolation washers coated with our unique PTFE-coated hardened-steel coatings.
4. Spiral wound Mylar is a general-purpose material recommended for bolting applications. It has a dielectric strength of 550 V/mil, and has generally fair resistance to crushing, breaking, and thread pinch.
5. Nomex - Glass Reinforced Epoxy Laminate Material: NEMA Grade Material. This material has a dielectric strength of 550 V/mil, and has generally fair resistance to crushing, cracking, and breaking. The steel washer is made from Grade 1050 and hardened-steel isolation washers coated with our unique PTFE-coated hardened-steel coatings.

**APPLIcATIONS:**

1. Critical Fire Safe Applications
2. Flange Isolation with true cathodic protection.
3. Sealing characteristics of laminate with a highly dielectric mineral secondary seal.
4. Incorporates high temperature sealing characteristics of laminate with a highly dielectric mineral secondary seal.
5. Reducing the temperature and pressure drop across the gasket.
7. Protect against corrosion on uncoated or scarred flange faces.
8. To seal between flanges subjected to vibration/cavitations.
9. Eliminate corrosion from forming in the cavities between RTJ flanges where internal sodium hydroxide may be present.

**APi 6FB TEST PROCEDURES**

The API 6FB test is designed to measure the total leakage from a flanged connection over the duration of burn and cool down periods, and when re-pressurized. The assembly is monitored throughout the test, and it must not exceed an API prescribed leakage rate.

During the test, a fire is applied by a series of burners directing fire onto the assembly with a pressure drop of 75% of operating pressure. The flame temperature is monitored by a series of thermocouples inside the flame and the flame temperature is monitored by evenly spaced calorimeter buckle measuring 17°F and made of carbon steel. The test requires that the temperature of the first and second calibrator buckle exceeds an average temperature of at least 105°F within 15 minutes of the fire's beginning. After the 105°F minimum is reached, the temperature must be maintained above this point for the remainder of the burn period.

At the end of the 30 minute burn period, the fire is shut off, and the assembly is allowed to cool while maintaining pressure. Once the assembly has cooled to 22°C or less, it is then re-pressurized for a minimum of 3 minutes. The test was performed with a 4” 304H Integra II SSAFS Gasket Isolation Kit with G10 sleeve and coated hardened-steel washers. The flanges were standard 8” 304H made of carbon steel, and the hardware was standard B7 studs with 216 SS nuts.

**APi 6FB Test Report**

**Government Certified Product** & Systems, Inc.

<table>
<thead>
<tr>
<th>Test Date</th>
<th>Temperature on Time</th>
<th>Pressure vs. Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start Date: October 28, 2015</td>
<td>End Date: October 28, 2015</td>
<td></td>
</tr>
</tbody>
</table>

**High-temperature Secondary Seal**

- SUS 316 Core
- Glass Laminate
- Hardened Steel Washers
- PTFE Spring-Energized Face Seal
- Compressed Insulating Glass Laminate
- Nut
- Bolt
- Stud

**Hightemperature Secondary Seal**

- SUS 316 Core
- Glass Laminate
- Hardened Steel Washers
- PTFE Spring-Energized Face Seal
- Compressed Insulating Glass Laminate
- Nut
- Bolt
- Stud

**SSAFS API 6FB TEST RESULTS**

According to the API standard 6FB, non-bending, on-shore or off-shore fire test, the SSAFS Gasket Kit was able to maintain a Fire Safe connection throughout the entire test. The measured leakage rate during the burn and cool down periods results in no leakage. Since the measured leakage rate during the re-represurization period was 0 mil/min.

**Fire Test Report**

**Standard PTFE Material**

- PTFE Spring Energized
- Designed for multiple applications. A detail-level product filled with the hollow warp-spun Teflon. Incorporates the PTFE spring well seal washers manufactured from a special formulated PTFE material allowing it to be used in a wide array of applications.

**Standard Temperature**

- 420°F to 450°F (nom: material is lasting factor)
What is InteGRA II SSAFS® Gasket & Why Is It Used?

The InteGRA II SSAFS® gasket is a metal-to-metal gasket designed to withstand the most demanding conditions, including high-pressure and high-temperature applications. It is suitable for use in all services up to and including ANSI 2500# and API 1500#, offering exceptional sealing characteristics of metal-to-metal contact. The coating is designed for multiple applications: A radial load is provided by the helical wound spring. Encapsulation promotes a constant seal.

The test was performed with a 6” 300# Integra II SSAFS gasket Isolation Kit with G10 sleeves and coated hardened-steel Isolating Washer. The gaskets were standard 304# made of carbon steel, and the hardware was standard 304# with nuts and bolts.

API 6FB Test Procedures

The API 6FB test is designed to measure the total leakage from a flanged connection over the duration of burn and cool down periods, and when re-pressurized. The assembly is monitored for the entire period, and it must not exceed an API prescribed leakage rate.

During the test, a fire is applied by a series of burners directing fire into the assembly while it is pressurized. The flame temperature is monitored by a series of thermocouples inside both flanges and the flame temperature is monitored by a series of thermocouples inside the flange and the flame is cooled by a series of air coolers.

The test requires the use of a series of burners directing the flame to the flange. The test results show that the gasket is suitable for use in all services up to and including ANSI 2500# and API 1500#, offering exceptional sealing characteristics of metal-to-metal contact. The coating is designed for multiple applications: A radial load is provided by the helical wound spring. Encapsulation promotes a constant seal.

The InteGRA II SSAFS® gasket is 316SS with permanently bonded insulating glass laminate adhered to both faces. The test was performed with a 6” 300# Integra II SSAFS gasket Isolation Kit with G10 sleeves and coated hardened-steel Isolating Washer. The gaskets were standard 304# made of carbon steel, and the hardware was standard 304# with nuts and bolts.
Isolation Gasket technical spec shall be located so as to provide sealing for either PTFE spring energized seal. The PTFE seal provide a controlled compression of an engineered sides, shall contain a precision machined groove to reinforced laminate permanently bonded to both sides, shall contain a precision machined grooves to provide a controlled compression of an engineered PTFE spring energized seal. The PTFE seal shall be located so as to provide sealing for either flat, raised or RTJ face flanges, and also shall be pressure and spring energized. The gasket shall also contain precision machined and PTFE coated kammprofile serrations on both sides with a PTFE spring energized seal. The kammprofile serrations shall provide Fire Safe protection for either flat, raised or RTJ face flanges. The fiberglass reinforced laminate shall have a dielectric strength of 800 V/mil (G-11: 550 V/mil) and a maximum compressive strength of 66,000 psi (G-11: 58,000 psi). The gasket ID shall have a diameter that matches the flange ID in which it is installed. The gasket shall have a minimum compressive strength of 12,352 psi with G-10 laminate (400 psi with G-11).

Gasket Isolation Kit

Coated, flattened Steel Washers

Accompanying the Integra II SSAFS Isolation Gasket are our hardened-steel isolation washers coated with our unique and highly durable, proprietary coating. This coating exhibits exceptional dielectric strength and is tough enough to withstand the required high temperatures. These washers also display exceptional abrasion resistance. The resilient nature of these washers and its hardened-steel design make it ideal for backwards installation. These washers are not only useful for Fire Safe applications and corrosive environments where a fire can damage the gasket and its components for use on pipes containing water, aqueous fluids, oil, or sour or natural gas, shall be manufactured as follows.

Gasket Isolation Kit

Coated, flattened Steel Washers

Accompanying the Integra II SSAFS Isolation Gasket are our hardened-steel isolation washers coated with our unique and highly durable, proprietary coating. This coating exhibits exceptional abrasion resistance. The resilient nature of these washers and its hardened-steel design make it ideal for backwards installation. These washers are not only useful for Fire Safe applications and corrosive environments where a fire can damage the gasket and its components for use on pipes containing water, aqueous fluids, oil, or sour or natural gas, shall be manufactured as follows.

Mechanical Properties

1. Steel Washer

a. Material per ASTM F438

b. Hardness: HRC 38 – 45

2. Coating

da. Durable, proprietary blend to provide excellent abrasion resistance along with exceptional high-temperature and corrosion resistance.

b. Low Coefficient of Friction

c. Scratch resistant, HRC 70

d. Minimum Operating Temperature: -100° F

e. Maximum Operating Temperature: 600° F

ISO-9001:2015 Certified Company
IsolatIon Gasket technical spec

The gasket and its components for use on pipes containing water, aqueous fluids, oil, or non-aromatic gas, shall be manufactured as follows:

The gasket shall provide isolating and sealing between the two flanged connections. The gasket, Integra II SSAFS, 3/64” uncompressed thickness and 2.74” compressed thickness, with a 376 Stainless Steel core and NEMA grade G-11 or G-11 fiberglass reinforced laminate permanently bonded to both sides, shall contain a precision machined groove to provide a controlled compression of an engineered PTFE spring energized seal. The PTFE seal shall be located so as to provide sealing for either flat, raised or RTJ face flanges, and also shall be pressure and spring energized. The gasket shall also contain precision machined and PTFE coated kammprofile serrations on both sides with a file face machined to the face of the flange. The serrations on the kammprofile serrations shall provide Fire Safe protection for either flat, raised or RTJ face flanges. The fiberglass reinforced laminate shall have a dielectric strength of 800 V/mil (G-11: 350 V/mil) and a maximum compressive strength of 98,000 psi (G-11: 55,000 psi). The gasket ID shall have a diameter that matches the flange ID in which it is installed. The gasket shall have a free corroding temperature of -132 °F with G-10 laminate (400 °F with G-11).

Other Products Available:

• Standard Insulating Gasket Kit
• Integra II SSAFS Flange Protectors
• Radikal® Nut & Bolt Protector Caps
• Casing Spacers and End Seals
• Innerlynx® Modular Mechanical Seals
• Monolithic Isolators
• Foreman Nite Caps - temporary pipe plugs
• Bolt-Cote® & Atlas Pipe Support® Packs

Made in USA

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FIRE-RATED ISOLATION GASKETS

TO ORDER A COMPLETE FIRE-RATED INSULATING GASKET KIT PLEASE SPECIFY THE FOLLOWING:

1. Flange Specification (ANSI, B16.5, JIS, BS or Din Standard)
2. RTJ or Raised Face
3. NPS, NPSM, Diameter, Pressure Class and Body Material
4. Operating Pressure, Temperature and Media

Isolated Test Results

Isoalted Test Results

Notes:

Note: Please contact your distributor or the factory for prices.