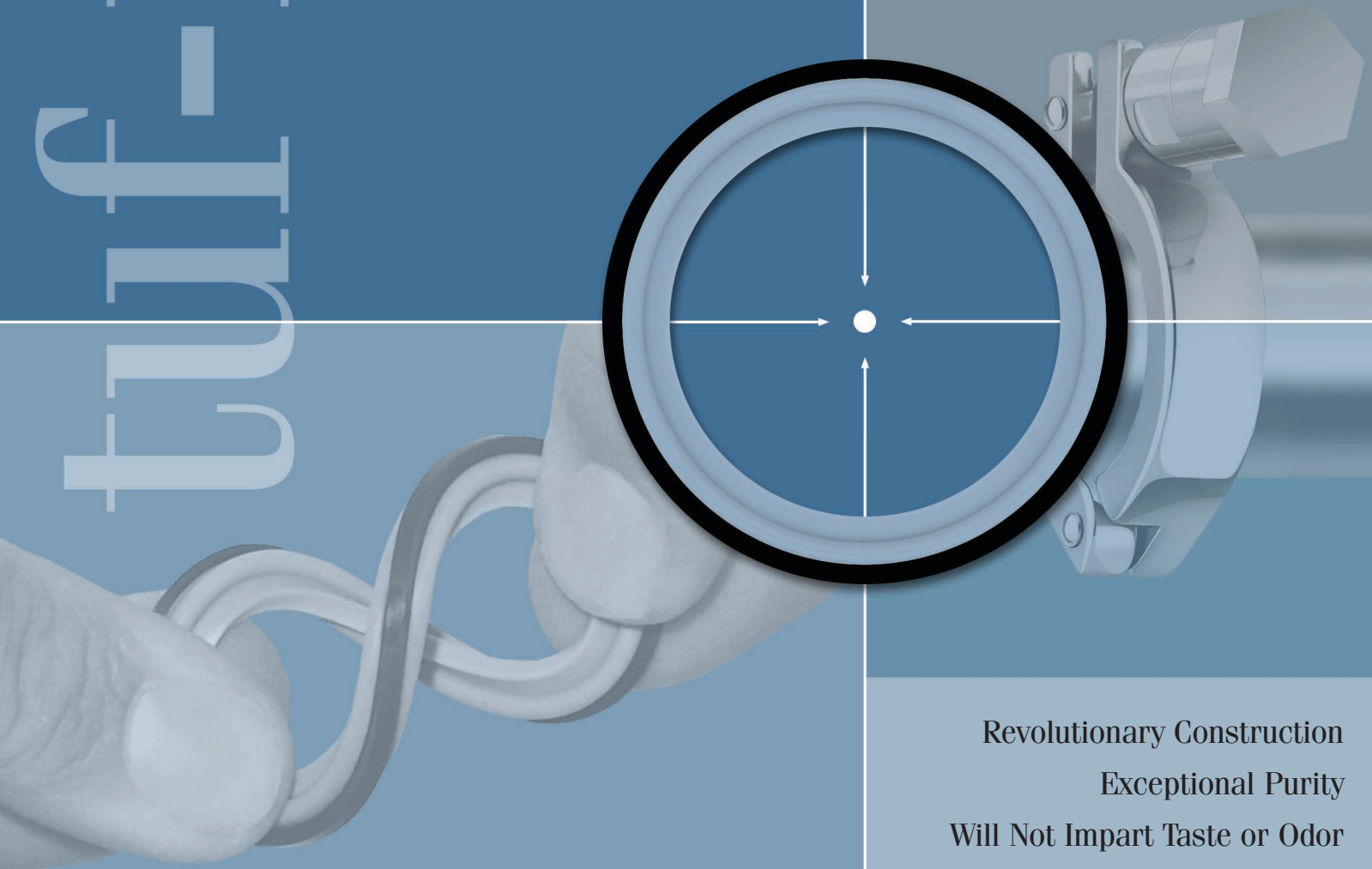


tuf-flex

TUF-FLEX®

The Ultimate in
Gasket Performance

*Will Not Impart Taste or Odor!
No Cross Flavor Contamination.*



Revolutionary Construction

Exceptional Purity

Will Not Impart Taste or Odor

Superior Performance

Extended Up-Time

3A Certified

Animal Derived Ingredient Free



Rubber Fab

a Garlock Hygienic Technologies company

TUF-FLEX®

Introducing a Technologically Advanced Sanitary Gasket

Tuf-Flex, the **revolutionary sanitary gasket** from Rubber Fab, is the **world's only unitized seal** setting new standards for **purity, performance and flexibility**. Designed to meet critical requirements in pharmaceutical, biotechnology, ultra-pure water, WFI (water-for-injection) and difficult food and beverage processing, **Tuf-Flex outperforms other sanitary hygienic seals and increases uptime by helping eliminate costly process interruptions.**

Performance Based on a Revolutionary Composition

A Tuf-Flex sanitary gasket's contact surface is a **layer of PTFE grafted to an EPDM rubber inner core**. This **totally bonded construction** provides an **exceptionally pure and incredibly flexible seal.**

By grafting the elastomer with a layer of PTFE, **Tuf-Flex will behave like an elastomer but will prevent product contamination, service interruptions and clean-up costs** associated with traditional elastomer seals.

Product Purity Without Changeout

With standard CIP cleaning, Tuf-Flex sanitary gaskets **will NOT impart taste or odor**. Because **there's no cross flavor contamination**, **Tuf-Flex increases processing uptime by minimizing need for changeout.**



High Performance With Exceptional Purity

Because its elastomer core is protected by a unitized layer of PTFE, a Tuf-Flex sanitary gasket will not **release elastomer extractables or particulates** totally **eliminating spalling**. The result is an **exceptionally maintained sanitary tubing I.D. with no I.D. invasiveness or system contamination.**

Achieve Higher Results Under SIP/CIP Conditions

- Uniting the **flexibility** of an elastomer with the **chemical resistance** of PTFE
- **Superior resistance to cold flow and creep**
- Excellent **chemical resistance**
- **Minimal thermal expansion**
- **Exceptional flexibility**

Tuf-Flex Is Ultra-Pure

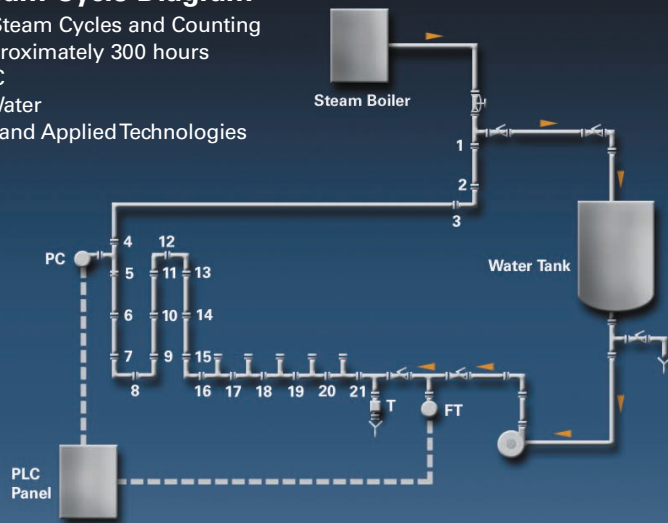
- **Will not impart taste or odor – no cross flavor contamination**
- **No extractables, TOCs or particulates** to contaminate product stream
- **No-pigment**
- **No gasket I.D. invasion**
- **Exceptional cleanability response**
- **Non-stick surfaces**

Tuf-Flex Prevents Process Interruptions

- **Perfect cleanability**
- **No re-torquing**
- **Up to 500 SIP cycles guaranteed**
- **Outstanding service life**
- **Reusable**
- **Extended uptime**
- **Maintains seal @ 30 in./lbs. and 50 in./lbs.**
- **Temperature Range: -20°F to 300°F**

Steam Cycle Diagram

50 Steam Cycles and Counting
Approximately 300 hours
90°C
DI Water
Holland Applied Technologies



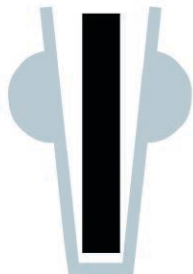
TUF-FLEX Sanitary Gasket Life Study

Product	Material	Durometer Before	Durometer After	I.D. Dia. Before	I.D. Dia. After
TUF-FLEX	PTFE	92	94	1.406	1.39
TUF-FLEX	EPDM	92	95	1.406	1.366

Type I and Type III Envelope Gaskets vs TUF-FLEX



A Solid PTFE Type I gasket is guaranteed to fail in SIP conditions. They will creep, cold flow and leak at ΔT.



The Envelope gasket construction provides inconsistent results between the two materials. It will also creep, cold flow and leak over time.



The PTFE grafted elastomer in a Tuf-Flex gasket will maintain I.D. without re-torquing or leaking.

TUF-FLEX Sanitary Gasket

Item	Unit	Spec.	"A" Type	"B" Type
Normal Condition Test				
Hardness	HS (JIS A)	80±5	82	77
Tensile Strength	M Fa	9.8 Min.	18.5	16.7
Elongation	%	150 Min.	160	310
Aging Test				
Hardness Change	POINTS	+5 Max.	+1	+2
Tensile Strength Change	%	-15 Max.	-3.2	-7.2
Elongation Change	%	-25 Max.	-11.6	-19.4
Compression Set Test				
Compression Set	%	+25 Max.	+7	+13

TUF-FLEX... The World's Only Unitized Sanitary Gasket

1/2"	A42MPGR-TF-050-E
3/4"	A42MPGR-TF-075-E
1"	A40MPGR-TF-100-E
1-1/2"	A40MPGR-TF-150-E
2"	A40MPGR-TF-200-E
2-1/2"	A40MPGR-TF-250-E
3"	A40MPGR-TF-300-E
4"	A40MPGR-TF-400-E
6"	A40MPGR-TF-600-E



Specify Tuf-Flex® the World's Finest Sanitary Gasket

- Unites the **flexibility** of an elastomer with the **chemical resistance** of PTFE
- Up to 500 steam cycles guaranteed
- **Totally unitized**, perfectly sealed
- **Leak-proof performance**
- Superior **creep resistance**
- Excellent **chemical resistance**
- **Increases uptime**
- Minimal thermal expansion
- No re-torquing necessary
- Outstanding service life
- **Outstanding purity** – no extractables, TOCs or particulates
- No gasket extrusion into the I.D.
- **Non-stick surfaces**
- **No pigments**
- Easy cleanability
- Also available in 150# Ansi-Flex and IDF-Flex

Tuf-Flex® Meets Stringent Standards

- U.S. Pharmacopeia Class VI Certification
- Cytotoxicity Criteria
- Title 21 CFR 177.2600 and 177.1550
- 3-A Certified
- USDA Sanitary Standards
- Current Good Manufacturing Practices (CGMP)
- ASME-BPE Standards
- Animal Derived Ingredient Free

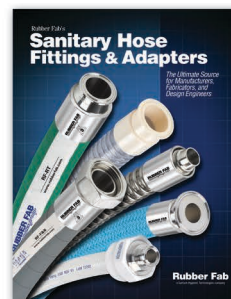
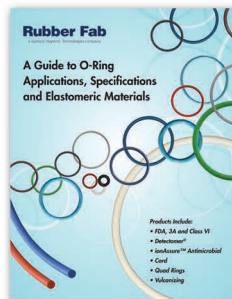
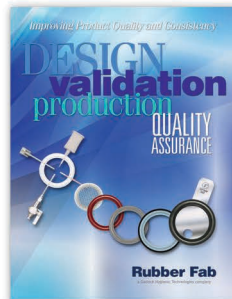
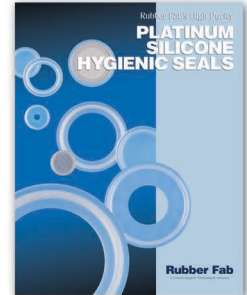
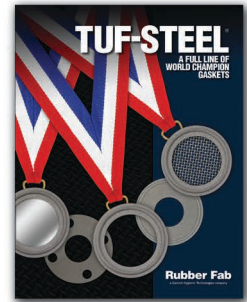
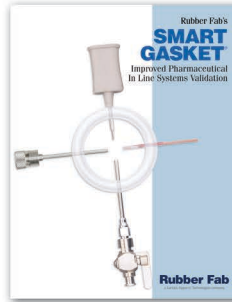
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* Buna is not an ADI Free elastomer.



Rubber Fab
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Also Available From Rubber Fab



Rubber Fab is a leading innovator of high quality sanitary gaskets, hose assemblies, valve, pump and filler machine components in a wide range of high purity elastomer materials. For additional information, contact Rubber Fab at 973-579-2959 or visit us at www.rubberfab.com.

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