

Garlock STRESS SAVER® Family

Superior low-torque gaskets for metallic or non-metallic flanges



Garlock STRESS SAVER® Family

The STRESS SAVER® family of products have provided reliable sealing performance in low load flanges for decades. The raised rib features are key in achieving stress optimization through reduced contact area in non-metallic flanges where torque and stress are limited. Each of the STRESS SAVER® styles are designed to meet a critical need whether that is chemical resistance, high purity sealing or compatibility with piping polymers of construction.

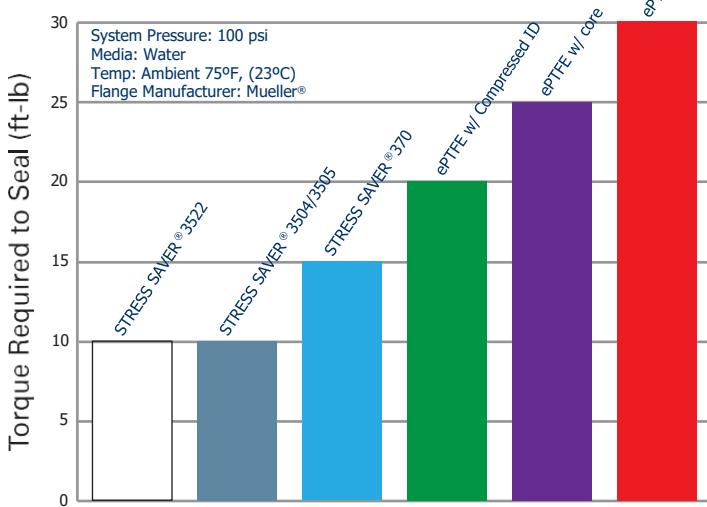
STRESS SAVER® 3522

By combining our patented molding technology with our proprietary GYLON® 3522 material, Garlock is proud to introduce the next level of performance in the STRESS SAVER® family. The new STRESS SAVER® 3522 is constructed of 100% restructured PTFE, which offers universal chemical compatibility, limited leachable contaminants and easy to clean contact surfaces that will not promote bacterial growth. In addition, the STRESS SAVER® 3522 is crush resistant, and designed to work effectively in both higher stress raised face flanges as well as non-metallic flanges.

VALUE AND BENEFITS

- » Versatility - Suitable for both metallic and non-metallic piping, flat or raised face flanges, in sizes 1/2" through 8" 150# and 300# ASME and DIN standards
- » Chemical Resistance – Widest range of chemical compatibility based on 100% PTFE construction, allowing to simplify inventories and selection process
- » Limited Creep and Cold Flow – Greatly reduces the risk of leakage after installation and system thermal cycling
- » Superior Physical Properties – High purity construction with easy to clean surface, limits contamination or leachable concerns
- » Homogeneous Construction – Single piece design to avoid permeation, delamination, or foldover of PTFE envelopes
- » NSF 61 compliant. Suitable for oxygen service
- » BAM tested - Gaseous and liquid oxygen (LOX) service

3"-150# PVC FLANGE SEALABILITY TEST



THERMAL CYCLE TESTING - STRESS SAVER® 3522 AND 3504

Fiberglass Reinforced Pipe, Flat Face Flanges, Lubricated Carbon Steel Bolts

Size	Temperature	Media	Test Pressure	Torque	Test Parameters
6"	95°F to 180°C	Water	150 psi	35 ft-lbs	<ul style="list-style-type: none"> • Minimum of 100 cycles • 30 min. ramp up to 180°F • 5 min. dwell @ 180°F • 10 min. cool down to 95°F

DIN 3535 "STEP LOAD" GAS PERMEABILITY TESTING (NITROGEN)

STRESS SAVER® Style 3522 and 3504

Gasket Stress (psi)	200	300	600	900	1200	1800	2400	3600	4640
Internal Pressure (psig)			50					580	
Leakage (cc/min)			<0.011					<0.011	

STRESS SAVER® 3504

Our patented STRESS SAVER® 3504 and 3505 for NSF 61 requirements, combine proven "stress optimization" sealing ribs with the performance characteristics of the industry recognized GYLON® 3504 material. The combination of these two time- tested technologies make the STRESS SAVER® 3504 an ideal sealing solution for non-metallic flat and raised face flanges.

VALUE AND BENEFITS

- » Versatility - Suitable for both metallic and non-metallic piping, flat or raised face flanges, in sizes 1/2" through 12" 150# and 300# ASME and DIN standards
- » Chemical Resistance – Ideal for a wide range of both mild caustics and many strong acids
- » Limited Creep and Cold Flow – Greatly reduces the risk of leakage after installation and system thermal cycling
- » Superior Physical Properties – Higher temperature and pressure capabilities compared to rubber gaskets
- » Homogeneous Construction – Single piece design to avoid permeation, delamination, or foldover of PTFE envelopes
- » FDA, USP Class VI, and NSF 61 compliant



STRESS SAVER® XP

Single piece molded design for ease of installation and manufactured from high performance, proprietary blend of fluoroelastomers. Suitable for use in potable drinking water, steam, and aggressive chemicals.

VALUE AND BENEFITS

- » Versatility - Available in sizes 1/2" through 24" 150#, and 300# ASME and DIN standards
- » Tighter Seal - Lower seating stress than expanded PTFE gaskets; ideal for flat-faced non-metallic flanges
- » Chemical Resistance - High performance fluoroelastomer; outperforms traditional fluoroelastomers in severe chemical and steam applications with improved heat resistance.
- » Certified Lubrizol FBC™ System Compatible making it suitable for use in CORZAN® (CPVC) Piping and certified to NSF 61 for potable drinking water systems



Corzan is a registered trademark of Lubrizol®

STRESS SAVER® 370

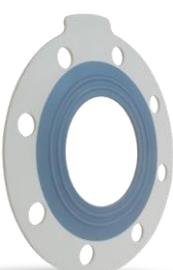
White FDA compliant molded EPDM encapsulated with PTFE. Proprietary process bonds the PTFE to the elastomer, eliminating envelope fold-over concerns during installation.

VALUE AND BENEFITS

- » Versatility - Available in sizes 1/2" through 24" 150#, and 300# ASME and DIN standards
- » Tighter Seal - Lower seating stress than expanded PTFE gasket; ideal for flat-faced non-metallic flanges
- » Chemical Resistance - Virgin PTFE sealing surface resists a variety of moderate chemicals
- » High Purity - FDA** white EPDM and PTFE is ideal for the electronics*, pharmaceuticals, and food industries

*Tested by BALAZS Labs for trace metal extractables, anions, cations, and T.O.C.s. Results available upon request.

** Consult Garlock Applications Engineering for FDA information



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TYPICAL PHYSICAL PROPERTIES

STRESS SAVER® 3522		STRESS SAVER® 3504/3505	STRESS SAVER® 370	STRESS SAVER® XP
Composition:	100% restructured PTFE	Restructured PTFE with aluminosilicate microspheres	PTFE encapsulated EPDM (60 Duro Shore A)	Proprietary blend of fluoroelastomer (70 Duro Shore A)
Color:	Translucent	Blue	PTFE: Gray Blue EPDM: Off-white	Black
Size Range:	1/2" (150#/300#) - 8" (150#/300#)	1/2" (150#/300#) - 12" (150#/300#)	1/2" (150#/300#) - 24" (150#/300#)	1/2" (150#/300#) - 24" (150#/300#)
Temperature:				
Minimum:	-450°F (-268°C)	-450°F (-268°C)	-40°F (-40°C)	-15°F (-26°C)
Ideal Operating Limit:	400°F (204°C)	400°F (204°C)	200°F (93°C)	250°F (121°C)
Maximum:	+500°F (+260°C)	+500°F (+260°C)	+300°F (+149°C)	+400°F (+204°C)
Pressure:				
Ideal Operating Limit:	750 psig (52 bar)	750 psig (52 bar)	150 psig (10 bar)	150 psig (10 bar)
Maximum:	800 psig (55.2 bar)	800 psig (55.2 bar)	250 psig (17 bar)	250 psig (17 bar)
Media ³ :	Strong acids and caustics, hydrocarbons, refrigerant, cryogenics, ultra pure, deionized and potable water	All solvents, moderate caustics and many strong acids, hydrocarbons, refrigerants, cryogenics and potable drinking water	Moderate acids, caustics, gases, water, hydrocarbons	Potable drinking water, steam, most hydrocarbons, gases, solvents
M&Y:	2.0 / 400 psi	2.0 / 400 psi	2.0 / 400 psi	0.5 / 100 psi

¹ Max pressure is dependent on available compressive stress and is not achievable in all flange types.

² When approaching maximum pressure or temperature, consult Garlock Engineering

³ The suitability of a specific media should be verified with Garlock Applications Engineering

Garlock Bolt Torque Values for STRESS SAVER® Gaskets B16.5 150# Flat Face Flanges ⁽¹⁾⁽²⁾					
Nominal Pipe Size	Number of Bolts	Size of Bolts	Minimum Suggested Torque	Preferred Torque Range	
(in)	Bolts	(in)	(ft. lbs)	Min. (ft. lbs)	Max (ft. lbs)
0.5	4	0.50	5	9	19
0.75	4	0.50	6	12	23
1	4	0.50	7	14	25
1.25	4	0.50	8	16	25
1.5	4	0.50	10	19	25
2	4	0.63	17	33	50
2.5	4	0.63	23	45	50
3	4	0.63	25	49	50
3.5	8	0.63	15	30	50
4	8	0.63	17	33	50
5	8	0.75	21	41	82
6	8	0.75	23	46	83
8	8	0.75	33	66	83
10	12	0.88	32	64	128
12	12	0.88	47	93	133
14	12	1.00	67	134	204
16	16	1.00	60	120	204
18	16	1.13	66	132	264
20	20	1.13	62	124	249
24	20	1.25	87	173	347

NOTE 1: Table based on a maximum bolt stress of 25,000 PSI. Bolts with a minimum yield strength of 30,000 PSI are acceptable.
 NOTE 2: Garlock does not recommend exceeding the flange manufacturers maximum recommended torque.
 NOTE 3: Minimum torque value is equal to 300 PSI compressive stress.
 NOTE 4: Preferred range creates 600 to 1200 PSI compressive stress.

INDUSTRIES SERVED

- » Semiconductor
- » Chemical Processing
- » Electronics
- » Food & Beverage
- » Pharmaceutical
- » Pulp and Paper
- » Water (Potable & Waste Water)*

* Specify STRESS SAVER® 3505, 3522, or XP for systems requiring NSF 61 approved gaskets

IDEAL FOR

- » PVC
- » FRP
- » PVDF
- » CPVC
- » Polypropylene
- » Cast and ductile iron

STRESS SAVER®	Flat face flange	Raised face flange
3522	✓	✓
3504	✓	✓
370	✓	
XP	✓	

Helping Industry Become; More Safe, More Productive, More Sustainable