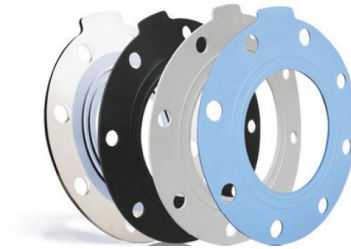


Installation Guide for Garlock STRESS SAVER® Gaskets



Factors Affecting Gasket Performance

A gasket has one basic function: to create a positive seal between two relatively stationary parts. The gasket must do several different jobs well to function properly - first, create an initial seal; second, maintain the seal over a desired length of time; third, be easily removed and replaced. Varying degrees of success are dependent on how well the gasket does the following:

1. Seals system fluid.
2. Chemically resists the system fluid to prevent serious impairment of its physical properties.
3. Deforms enough to flow into the imperfections on the gasket seating surfaces to provide intimate contact between the gasket and the sealing surfaces.
4. Withstands system temperatures without serious impairments of its performance properties.
5. Is resilient and creep resistant enough to maintain an adequate portion of the applied load.
6. Has enough strength to resist crushing under the applied load and maintain its integrity when being handled and installed.
7. Does not contaminate the system fluid.
8. Does not promote corrosion of the gasket seating surfaces.
9. Is easily and cleanly removable at the time of replacement.

During the gasket selection process that follows, we recommend that these nine (9) factors be used as a checklist from the viewpoint of the user's degree of need for each factor and the manufacturer's degree of compliance.

STRESS SAVER® Gasket Installation

A few simple precautionary measures must be observed during installation to ensure the most satisfactory joint.

A few simple steps must be followed during installation to ensure optimum performance:

1. Verify the flange faces are clean, free of debris/fluids, and in good working condition (flat, aligned, no major defects, etc.).
 2. Bolts/studs and nuts should be in good working order (ideally new) and turn together freely.
 3. Bolt/stud threads should be lubricated with a good quality thread lubricant and installed with at least one hardened flat washer under each nut being turned to reduce friction and optimize load translation.
 4. Finger-tighten and lightly snug all bolts/studs and nuts using a crossing pattern (see Figure 1) prior to beginning the torqueing process.
 5. Using a calibrated torque wrench, tighten the nuts in multiple steps using a crossing pattern (see Figure 1) to evenly compress the gasket.
 6. Once the final torque is achieved make a final pass at the final torque moving consecutively from bolt to bolt (see Figure 2).
 7. Retorque 12-24 hours after initial installation when possible (see Figure 2). For safety reasons, Garlock does not recommend retightening a flange connection once it is brought up to temperature and/or pressure. All applicable safety standards including lockout/tagout procedures should be observed.
- NOTE: Never use liquid or metallic based anti-stick or lubricating compounds on the gaskets. Premature failure could occur as a result.

Correct Bolting Patterns

Figure 1 – Crossing Pattern

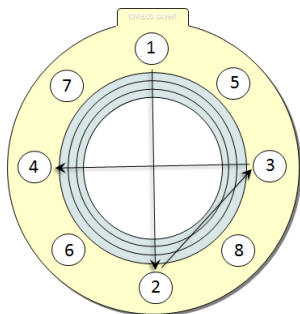
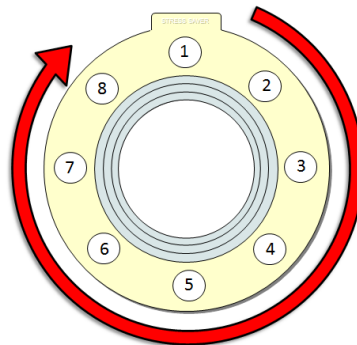


Figure 2 – Final Pass / Retorque

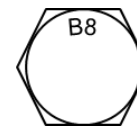


WARNING:

When installing **STRESS SAVER®** gaskets in non-metallic flanges or flanges with non-metallic liners (PTFE, PVDF, Rubber, etc.) consult the flange manufacturer to verify the torque values shown below are accept. To avoid flange damage never exceed the maximum allowable torque provided by the flange manufacturer.



Bolt Torque Values for **STRESS SAVER® gaskets in
ASME B16.5 Class 150# **FLAT FACE** Flanges
with **A307 or A193 B8/B8M Class 1 Bolts****



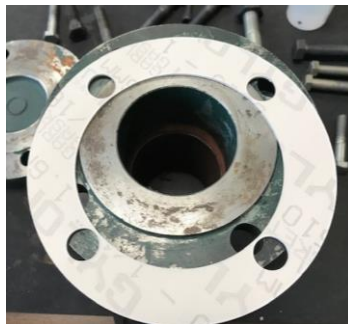
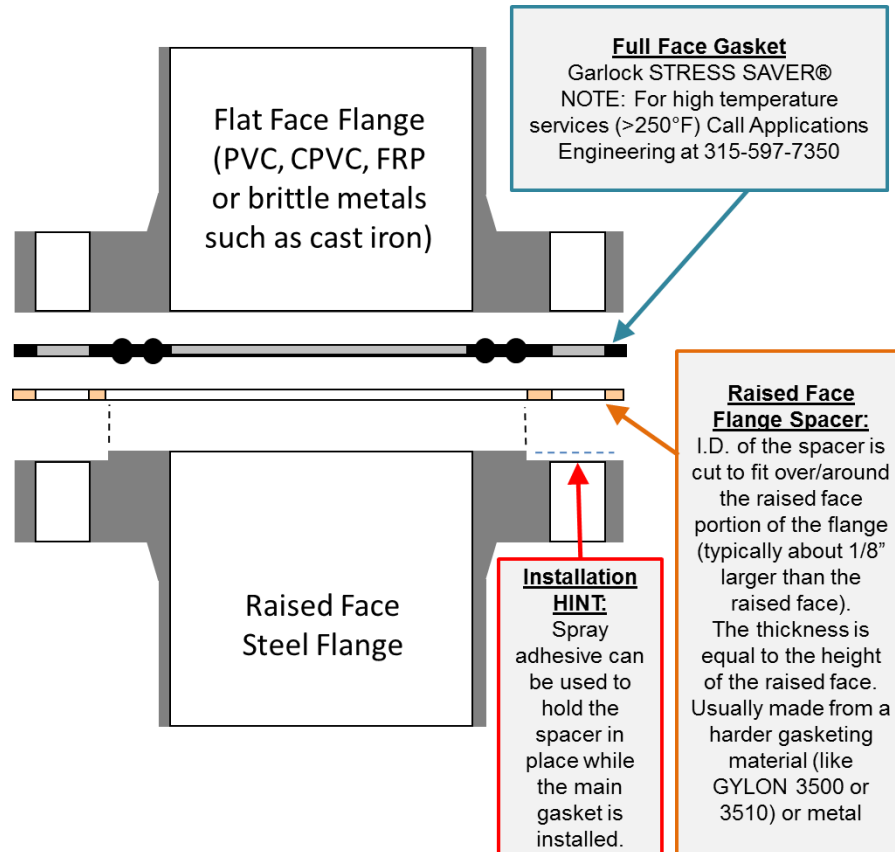
Nominal Pipe Size (in)	No. of Bolts	Size of Bolts (inches)	Minimum Suggested Torque (ft.lbs.)	Preferred Torque Range Preferred Torque	
				Minimum (ft.lbs.)	Maximum (ft.lbs.)
0.5	4	0.50	5	9	19
0.75	4	0.50	6	12	23
1	4	0.50	7	14	25
1.25	4	0.50	8	16	25
1.5	4	0.50	10	19	25
2	4	0.63	17	33	50
2.5	4	0.63	23	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

The above-mentioned torque values are based on a maximum bolt stress of 25,000 psi. Bolts with a minimum yield strength of 30,000 psi are acceptable.

WARNING: FLAT FACE to RAISED FACE connections

Non-metallic (PVC, CPVC, FRP) as well as brittle metal (cast iron) flanges are typically FLAT FACE and mating these flanges to a RAISED FACE metal flange could create bending moments that can damage the flat face flange.

When this condition occurs (non-metallic or brittle FLAT FACE flange mating to metallic RAISED FACE flange) a GYLON® 3500 or 3510 flange spacer or compensator ring should be used with a STRESS SAVER® gasket:



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