

Installation Guide for Garlock Premium Grade Elastomeric (Rubber) 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.

Elastomeric (Rubber) 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 torquing 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 Pattern

Figure 1 – Crossing Pattern

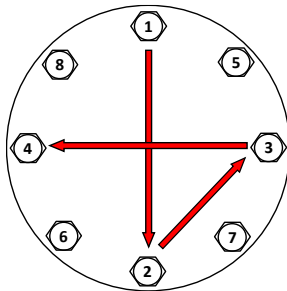
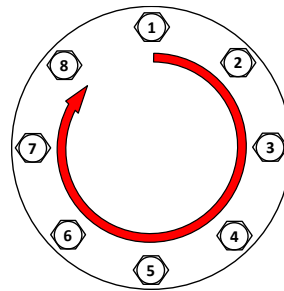


Figure 2 – Final Pass / Retorque



Garlock Premium Grade Elastomeric (Rubber) Gasketing Styles

Style	Material (Polymer Type)	Color	Durometer (Shore A +/-5)	Maximum/Preferred Torque Column
22	SBR	Red	75	BLUE
7797	Neoprene	Black	80	BLUE
7986	Neoprene	Black	60	RED
8314	EPDM	Black	60	RED
8316 ⁽¹⁾	EPDM	White	60	RED
9064 ⁽¹⁾	Neoprene	Off-white	60	RED
9122	Nitrile	Black	60	RED
9518	FKM	Black	75	BLUE
98206 ⁽²⁾	EPDM	Black	80	BLUE

Please contact Garlock Applications Engineering for styles not listed.

NOTE 1: FDA Compliant

NOTE 2: NSF 61 approved for potable drinking water.

**Bolt Torque Values for Full Face Homogeneous Elastomeric (Rubber) gaskets for
ASME B16.5 Class 150# FLAT FACE Flanges
with ASTM A307 or ASTM A193 B8/B8M Class 1 Bolts**

Nominal Pipe Size (in)	No. of Bolts	Size of Bolts (inches)	Minimum Torque (ft.lbs.)	<70 durometer Shore A Preferred Torque (ft.lbs.)	≥70 durometer Shore A Preferred Torque (ft.lbs.)
0.5	4	0.50	9	14	19
0.75	4	0.50	12	17	23
1	4	0.50	14	21	25
1.25	4	0.50	16	25	25
1.5	4	0.50	19	25	25
2	4	0.63	33	49	66
2.5	4	0.63	45	50	50
3	4	0.63	49	50	50
3.5	8	0.63	30	50	50
4	8	0.63	33	50	50
5	8	0.75	41	61	82
6	8	0.75	46	69	83
8	8	0.75	66	83	83
10	12	0.88	64	96	128
12	12	0.88	93	133	133
14	12	1.00	134	201	204
16	16	1.00	120	181	204
18	16	1.13	132	198	264
20	20	1.13	124	187	249
24	20	1.25	173	260	347

NOTE 1: This torque table applies for 1/16" and 1/8" thick homogeneous elastomeric gaskets. The pressure rating of the material may vary depending on the grade.

NOTE 2: The above-mentioned torque values are based on a maximum bolt stress of 25,000 psi. Bolt yield should be at least 30,000 psi.

NOTE 3: This table does not take flange strength into consideration. We recommend consulting the flange manufacturer to confirm the suitability of the above-mentioned values.

NOTE 4: Apply torque in increments. When the gasket extends past the OD of the flange by 1/4" to 3/8", stop tightening.

**Bolt Torque Values for Full Face Homogeneous Elastomeric (Rubber) gaskets for
ASME B16.47 Series A Class 150# FLAT FACE Flanges
with ASTM A307 or ASTM A193 B8/B8M Class 1 Bolts**

Nominal Pipe Size (in)	No. of Bolts	Size of Bolts (inches)	Minimum Torque (ft.lbs.)	<70 durometer Shore A Preferred Torque (ft.lbs.)	≥70 durometer Shore A Preferred Torque (ft.lbs.)
26	24	1.25	238	238	318
28	28	1.25	224	224	299
30	28	1.25	248	248	331
32	28	1.50	309	309	412
34	32	1.50	283	283	377
36	32	1.50	309	309	411
38	32	1.50	356	356	474
40	36	1.50	328	328	438
42	36	1.50	354	354	472
44	40	1.50	339	339	452
46	40	1.50	354	354	473
48	44	1.50	342	342	456
50	44	1.75	470	470	626
52	44	1.75	502	502	669
54	44	1.75	535	535	713
56	48	1.75	528	528	705
58	48	1.75	561	561	747
60	52	1.75	530	530	707

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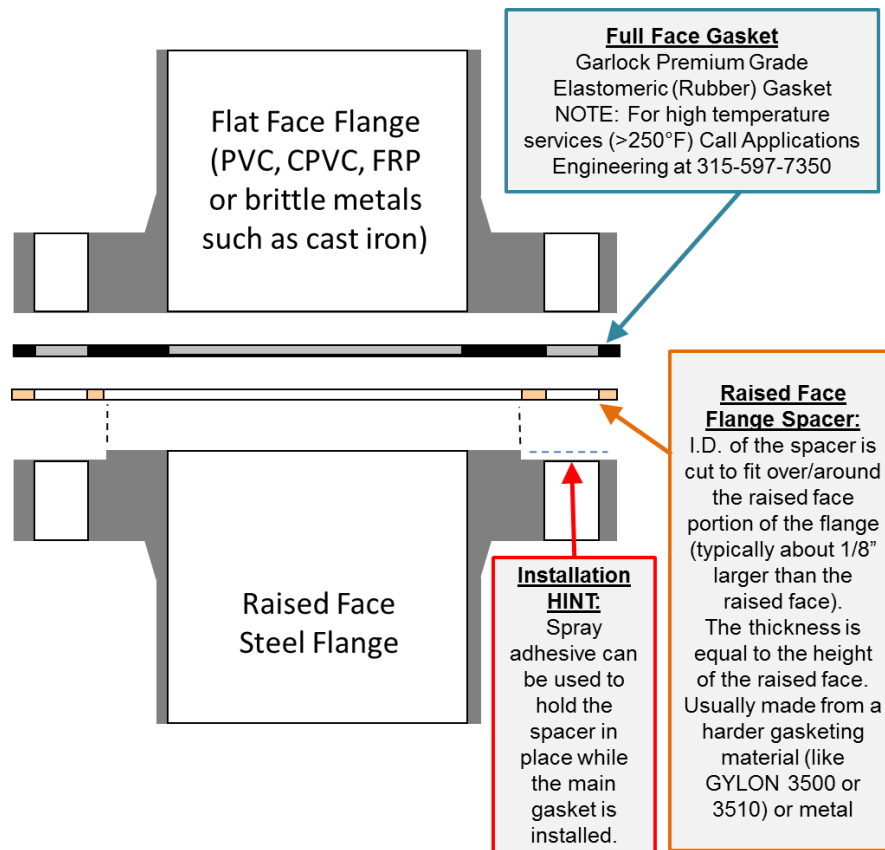
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WARNING: FLAT FACE to RAISED FACE connections

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 FULL FACE Elastomeric (Rubber) gasket:



Rev 2/2020