AF-4 Grooved Flange Adapter

AF-4 Grooved Flange Adapter

SUBMITTAL INFORMATION

PROJECT NAME:

ENGINEER:

CONTRACTOR:

SPEC. SECTION:

FEATURES & ADVANTAGES

- Designed for connecting ANSI/AWWA C110/A21.10 and ASME/ANSI B16.1 Class 125/150 flanged end components to grooved end ductile iron piping systems per ANSI/AWWA C606.
- 3" -12" sizes are UL, ULC listed and Factory Mutual Approved.

MATERIAL SPECIFICATIONS

- Housing: Ductile Iron per ASTM A536 Grade 65-45-12.
- Finish: Rust inhibiting primer.

LATCH BOLT/NUT OPTIONS (Please check one):

☑ Standard: Oval neck track bolt and heavy hex nut per ANSI/ASME B18.10 and B18.2.2.

☐ Optional: Stainless steel hex head bolts per ASTM A 193, grade B8M, class 2, type 316 & stainless steel heavy hex nut per ASTM A 194, grade 8M, type 316.

GASKET OPTIONS PER ASTM D2000 (Please check one):

☑ Stanard: Halogenated Butyl

Temperature range -20°F to +200°F (-29°C to +93°C). Recommended for water service within the specified temperature range plus a variety of dilute acids, oil-free air and many chemical services. Not recommended for petroleum services.

☐ Optional: Nitrile

Temperature range -20°F to +180°F (-29°C to +82°C). Recommended for petroleum products, air with oil vapors, vegetable and mineral oils within the specified temperature range, not recommended for hot dry air over +140°F and water over +150°F.

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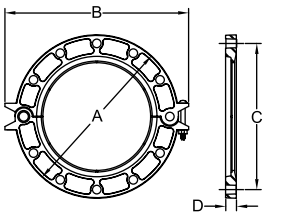
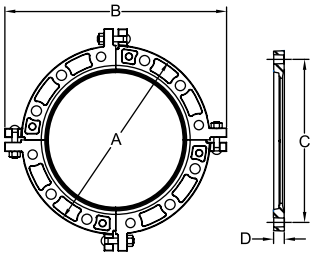
TECHNICAL INFORMATION

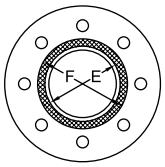


3" - 12" Size



14" - 24" Size

Mating flange required
Sealing area (shading)



FM

UL

ULC

Please check sizes:

AF-4 AWWA GROOVED FLANGE ADAPTER

NOM. SIZE	ACTUAL PIPE SIZE	MAX WORKING (PSI)/(kPa)	MAX END LOAD (LBS)/(N)	ASSEMBLY BOLTS QTY.	ASSEMBLY BOLTS SIZE	LATCH BOLTS QTY.	LATCH BOLTS SIZE	DIMENSIONS A	B	C	D	MAX. BORE E	MIN. SURFACE F	APPROX WT. (LBS)/(KG)
3 80	3.96 100.6	250 1724	3079 13696	4	5/8 X 3	1	3/8 X 3 1/4	7.50 191	9.47 241	6.00 152	0.94 24	3.96 101	4.94 125	6 2.7
4 100	4.80 121.9	250 1724	4524 20124	8	5/8 X 3	1	3/8 X 3 1/4	9.00 229	11.01 280	7.50 191	0.94 24	4.80 122	5.88 149	8 3.6
6 150	6.90 175.3	250 1724	9348 41582	8	3/4 X 3 1/2	1	3/8 X 3 1/4	11.00 279	13.04 331	9.50 241	1.03 26	6.90 175	8.00 203	10 4.5
8 200	9.05 229.9	250 1724	16082 71536	8	3/4 X 3 1/2	1	3/8 X 3 1/4	13.50 343	15.49 393	11.75 298	1.13 29	9.05 230	10.13 257	15 6.8
10 250	11.10 281.9	250 1724	24192 107611	12	7/8 X 4	1	1/2 X 4	16.00 406	18.49 470	14.25 352	1.19 30	11.10 282	12.50 318	19 8.6
12 300	13.20 335.3	250 1724	34212 152183	12	7/8 X 4	1	1/2 X 4	19.00 483	21.52 547	17.00 432	1.25 32	13.20 335	14.75 375	28 12.7
14 350	15.30 388.6	200 1379	36771 163566	12	1 X 4 1/4	4	5/8 X 3 1/2	21.00 533	24.63 626	18.75 476	1.50 38	15.30 389	16.54 420	46 20.9
16 400	17.40 442.0	150 1034	35668 158659	16	1 X 4 3/4	4	5/8 X 3 1/2	23.50 597	27.26 692	21.25 540	1.88 48	17.40 442	18.64 473	67 30.4
18 450	19.50 495.3	150 1034	44797 199267	16	1 1/8 X 5 1/2	4	3/4 X 4 1/4	25.00 635	29.14 740	22.75 578	2.25 57	19.50 495	20.74 527	84 38.1
20 500	21.60 548.6	150 1034	54965 244497	20	1 1/8 X 5 3/4	4	3/4 X 4 1/4	27.50 699	31.64 804	25.00 635	2.38 61	21.60 549	22.84 580	105 47.6
24 600	25.80 655.3	150 1034	78419 348825	20	1 1/4 X 6 1/4	4	3/4 X 5	32.00 813	36.14 918	29.50 749	2.50 64	25.80 655	27.04 687	132 59.9

**All dimensions in black text are in inches except where indicated. *All dimensions in blue text (below number) are in millimeters except where indicated.*

- *The effective sealing area of the mating flange must be free from gouges or deformities of any type to ensure proper gasket sealing.*
- *Working pressure and/or end load are total allowable.*
- *One time field test pressure may be increased to 1.5 times the figures listed above.*
- *Required flange bolts to be supplied by installer.*
- *Using AF-4 Flanges as anchor points for tie rods across joints that are not restrained is prohibited.*
- *When using wafer or lug-type valves to join fittings, verify disc dimensions to make sure adequate clearance is available.*
- *The hinge points / latch bolt locations must be staggered, and a flange washer (3"-12") or transition ring (14"-24") must be used when mating two AF-4 Flanges.h*
- *AF-4 Flanges require a smooth flat sealing surface. Some applications do not provide an adequate sealing surface. In these cases, a metal flange washer must be inserted between the AF-4 flange and the component.*

Example: • *When joining rubber lined or rubber faced flanges or wafer valves.*
• *When flanges, wafer check valves, etc. have a larger bore that does not allow enough sealing surface or if the flange face has an insert.*

REV.0512

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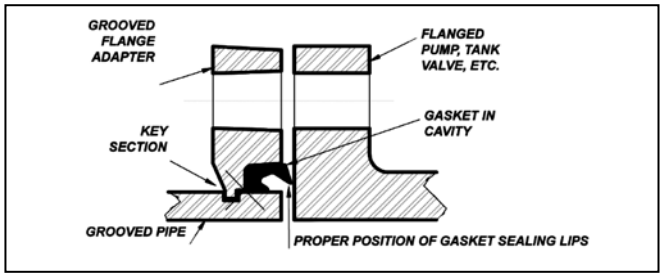
AF-4 Grooved Flange Adapter

FLANGE ADAPTER INSTALLATION INSTRUCTIONS - SIZES 3"-12"

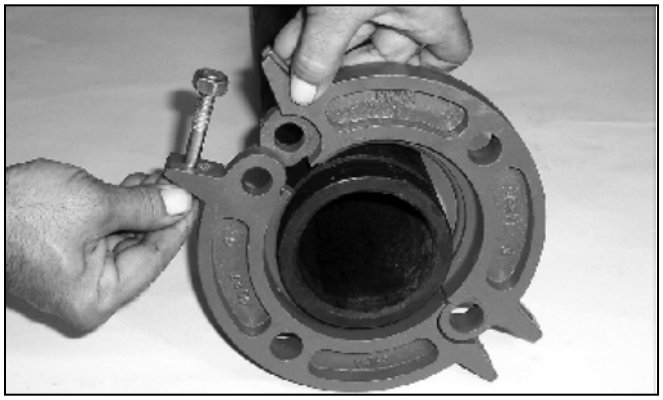
1. Check pipe end for proper groove dimensions and assure that pipe end is free of indentations and projections which would prevent proper sealing of the Grooved Flange Adapter gasket.

2. Loosen the nut on the end of the latch bolt (It should not be necessary to remove the nut completely). Swing the latch bolt out of the slot. Open Grooved Flange Adapter and place around the grooved pipe end with the key section fitting into the groove. The flange gasket cavity must face the pipe end.



5. Stretch the gasket around the pipe end and press the gasket into the cavity between the pipe O.D. and flange. The gasket must be properly positioned as shown above.

6. With gasket in place, apply lubricant to the exposed gasket lip which will seal against the mating flange.

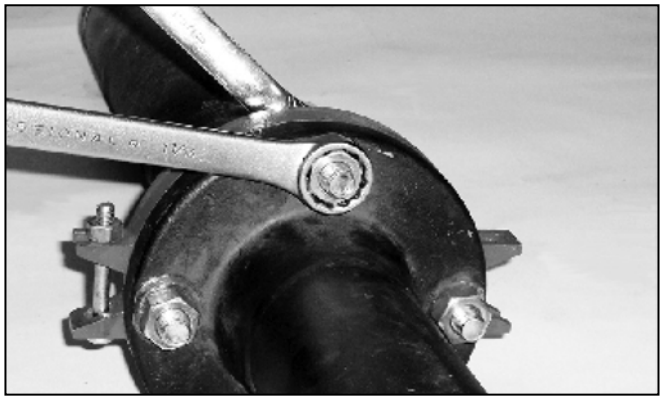


3. Place the latch bolt back into the slotted hole. Tighten the nut until the flange halves make complete contact with each other. Alternately, the latch bolt nut may be left without fully tightening so as to provide more space for ease of gasket insertion. After the gasket is properly positioned in the cavity, tighten the nut for complete contact of flange halves making sure that there is no gasket pinch between the two halves.

7. Check to assure that the mating flange face is hard, flat and smooth. The effective sealing area of the mating flange (see table, page 4) must be free from gouges or deformities of any type to ensure proper sealing of the gasket. Align Grooved Flange Adapter holes with the mating flange, pump, tank, etc.., bolt holes and insert standard flange bolts or studs (not supplied).

NOTE: Make sure that the gasket lip is not bent backwards or pinched between the two flanges.

4. Check the gasket for any deformation or cuts then lubricate the entire surface of the gasket and the flange gasket cavity using a non-petroleum base, non - toxic gasket lubricant.



8. Evenly tighten the nuts alternately on opposite sides until flange faces contact firmly and required torque is obtained.

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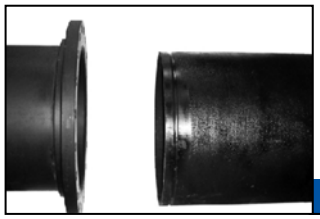
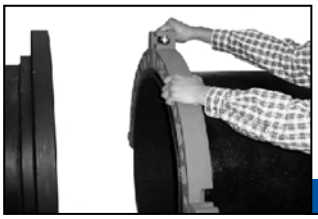
AF-4 Grooved Flange Adapter

INSTALLATION INSTRUCTIONS - SIZES 14"-24"

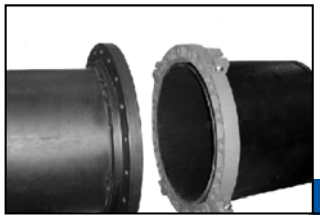


Inspect pipe end for proper groove dimensions and assure pipe end is free of indentations and projections which would prevent proper sealing of gasket. Also check mating flange sealing area making sure it is free from indentations and other deformities. Refer to table on page 4 for mating flange sealing area data.

Place one segment onto the grooved pipe end being sure that key section engages the groove and gasket cavity faces towards mating flange.

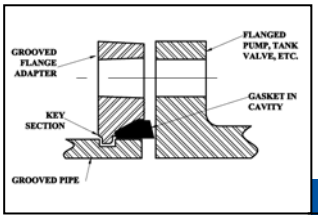


Add other segments sequentially with latch bolts loose enough to permit rotation for bolt hole alignment.

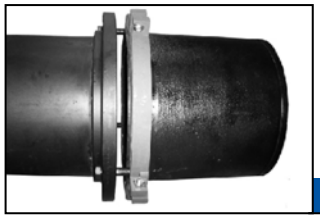


Rotate grooved flange adapter as required to line up with the holes in the mating flange.

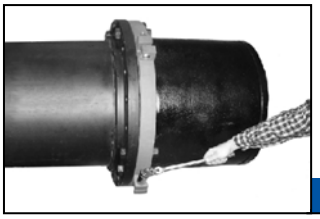
Check gasket supplied for any deformities or cuts, then apply a non-petroleum base, non-toxic gasket lubricant to inside and outside surface of gasket.



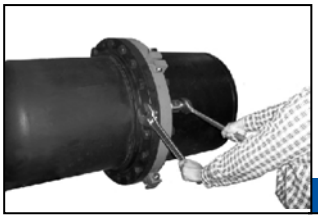
Stretch gasket around pipe end and press it into cavity between pipe O.D. and flange. The gasket must be properly positioned as shown above.



Insert four flange bolts (not supplied) at the segment's lap joints and direct them into adjoining flange and hand tighten nuts onto the four bolts.



Tighten four latch bolts to approximately 150 LB-FT torque.



Add remaining flange bolts (not supplied) and evenly tighten all to the recommended torque as shown below.

14" & 16" - 250 to 300 lb-ft
18" & 20" - 300 to 350 lb-ft
24" - 350 to 400 lb-ft

NOTE:

Do not over tighten the flange bolts. It is not necessary to bring the flange adapter face to face with mating flange. A gap of approximately 1/8" between flanges is normal.

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Gasket Selection Guide

INFORMATION

The following recommendations are to assist in the selection of gasket compounds to suit particular applications. The data furnished is based upon the best information available and data supplied by producers of basic copolymer materials and leading rubber molders and manufacturers. This information is to be used as a guide and is based on average conditions. Many other factors in actual service conditions must be considered in making a final selection.

Selecting the proper elastomeric compound for a specific application is largely a matter of making the best possible match between compound capabilities and service conditions. Sometimes compromises must be made, but usually a compound can be identified that meets all the specifications. For specific application conditions and selection assistance, contact Star Pipe Products.

STANDARD GASKETS

TYPE	TEMPERATURE RANGE	COMPOUND	COLOR CODE	GENERAL RECOMMENDATIONS
M	-20˚F to 200˚F	Halogenated Butyl	Brown	Recommended for hot and cold water within specified temperature range. Also for a variety of dilute acids, vegetable oils, air and other chemicals not involving any petroleum or hydrocarbons. **NOT RECOMMENDED FOR PETROLEUM OR HYDROCARBON SERVICE.**

SPECIAL GASKETS

TYPE	TEMPERATURE RANGE	COMPOUND	COLOR CODE	GENERAL RECOMMENDATIONS
B	-20˚F to 160˚F	SBR	None	Recommended for most general applications involving water within specified temperature range. **NOT RECOMMENDED FOR PETROLEUM OR HYDROCARBON SERVICE.**
L	-30˚F to 350˚F	Silicone	Red Gasket	Recommended for dry heat, air, oxygen, ozone and other applications involving extremes in temperature.
O	0˚F to 300˚F	Fluro-Carbon (Viton®)*	Blue	Recommended for most solvents, aromatics, mineral and synthetic oils and oxidizing acids.
S	-20˚F to 180˚F	Nitrile (Buna N)	Red	Recommended for most general applications involving petroleum products, vegetable oils, mineral oils and air with oil vapors; except hot dry air over 140˚F and water over 150˚F.

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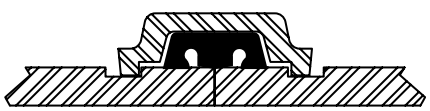
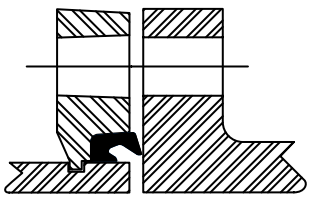
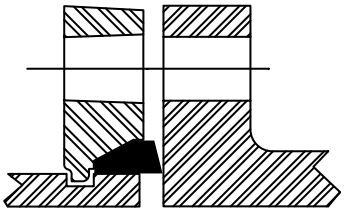


AC-9 Flush Gasket
3" - 36"



AF-4 Flange
3" - 12"



AF-4 Flange
14" - 24"

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