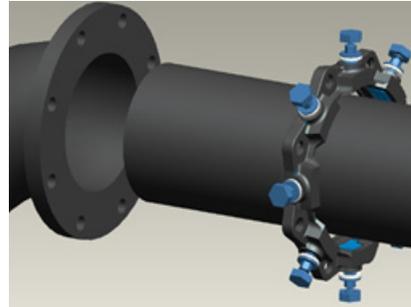


SIGMAFLANGE™ Universal Joint for Flanged Fittings, Flanged Pipes & Valves

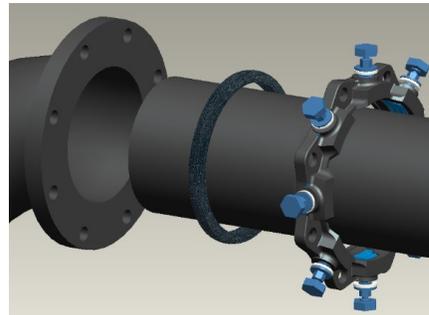
Installation Instructions:

1. Identify the type of pipe being used. Sigma Flange Universal joint, sizes 3" – 36", is designed to work on ductile iron pipe, AWWA C900 C909 PVC, and ASTM D2241 "IPS" PVC pipe and steel pipe. For use on ductile iron pipe or AWWA C900 PVC pipe, the restraints should be installed as received. If the pipe is ASTM D2241 "IPS" or steel pipe, REMOVE THE WHITE PLASTIC SPACERS from the break-off top actuating bolts on the restraint gland before assembly. The 3" Universal Joint is designed for use on ductile iron and "IPS" PVC pipe and do not have spacers.

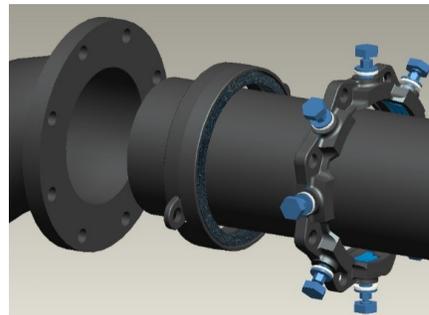
2. Cut the pipe to the required length, clean the end of the pipe for the length that needs to be inserted using a wire brush if needed to remove all excess paint, debris & foreign material. Also clean the opposing flange face to be connected to the Sigma Universal joint. Slide the restrainer gland on to the cleaned end of the pipe with the lip facing the plain end.



3. Lubricant the plain-end of pipe and gasket, then slide the Sigma Seal gasket onto the pipe. **(Transition gasket needs to be used for Steel & IPS OD PVC pipe.)**



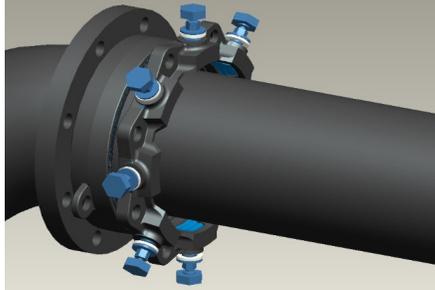
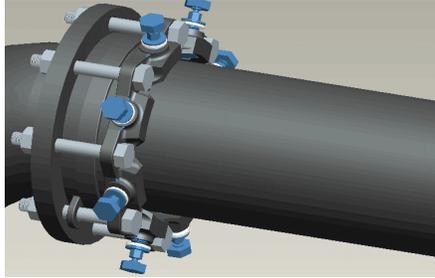
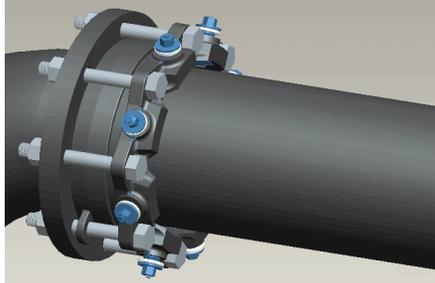
4. Insert the O-Ring into the groove of the Adapter ring if this is provided separately, if not make sure the O-Ring is in the correct position in the groove. Slide the Adapter Ring on the pipe with the O-Ring facing the plain end of the pipe and the gasket recess facing either the Sigma Seal gasket or transition gasket and restrainer gland.



5. Join the pipe-end and flange together within the maximum assembled deflection and maximum allowable gap "L" to the flange face. Slide the adapter ring, gasket and restrainer gland until contact is made with the opposing flange.



Installation Instructions (Continued):

<p>6. Insert and hand-tighten all hex bolts in corresponding bolt holes. Torque the hex bolts in an alternating manner (star pattern) to the recommended requirements. Make any necessary adjustments for joint deflection before the break off bolts actuating bolts are tightened. Make sure the gap “L” is maintained to the specified dimension to ensure the end of the pipe is not separated from the joint.</p>	
<p>7. Hand-tighten the break-off bolts in an alternating manner (star pattern) until all wedges are in contact with the pipe surface. Tighten the heads in an alternating manner (star pattern) until the heads are sheared off.</p>	
<p>8. If removal is necessary, loosen the actuating wedge bolts using the remaining hex shank. To re-install the joint, repeat steps 2 through 7 and torque the hex shanks to the specified value.</p>	

NOTE: WHEN USING SIGMA FLANGE UNIVERSAL JOINT WITH HDPE PIPE A PIPE STIFFENER/INSERT IS RECOMMENDED TO BE USED AND PLACED DIRECTLY BELOW THE POSITION OF THE WEDGE RESTRAINING GLAND.

Nominal Pipe Size	Hex Bolt Torque	Break-off Head Torque
3"	45 - 60 ft-lbs	55 - 65 ft-lbs
4"	75 - 90 ft-lbs	70 - 80 ft-lbs
6"		
8"		
10"		
12"		
14"		
16"		
18"	90 - 110 ft-lbs	70 - 80 ft-lbs
20"		
24"		
30"	120 ft-lbs	100 ft-lbs
36"	120 ft-lbs	100 ft-lbs