

Installation Instructions

For Non-Metallic Expansion Joints with Beaded End Flanges



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1. Service Conditions:

Make sure the expansion joint rating for temperature, pressure, vacuum*, movements and selection of elastomeric materials match the system requirements. Contact the manufacturer if the system requirements exceed those of the expansion joint selected. (*Vacuum service for spherical rubber connectors: Vacuum rating is based on neutral installed length. These products should not be installed "extended" on vacuum applications.)

2. Alignment:

Expansion joints are not designed to make up for piping misalignment errors. Piping misalignment should be no more than 1/8" in any direction. Misalignment of an expansion joint will reduce the rated movements and can induce severe stress of the material properties, thus causing reduced service life or premature failure.

3. Anchoring:

Expansion joints of this type will not resist thrust loads generated by internal pressures. As such, they must be fitted with control units **OR** the anchor/support system on either side of the expansion joint must be designed to restrain the associated pressure thrust loads.

4. Pipe Support:

Piping must be supported so expansion joints do not carry any pipe weight.

5. Mating Flanges:

Install the expansion joint against the mating pipe flanges and install bolts so that the bolt head is against the expansion joint flange. Flange-to-flange dimension of the expansion joint must match the breech opening*. (*A spherical rubber connector must be pre-compressed 1/8" to 3/16" during installation in order to obtain a correct installed face-to-face dimension.)

Make sure the mating flanges are clean and are a flat-faced type. When attaching beaded end flange expansion joints to raised face flanges, the use of composite gaskets are required to prevent metal flange faces from cutting rubber bead during installation.

Never install expansion joints next to wafer type check or butterfly valves.

6. Bolting Torque:

Bolt-Torque Table shows the recommended torque values for non-metallic expansion joints with beaded end type-flanges: Tighten bolts in stages by alternating around the flanged. Use the recommended torque values in the Bolt-Torque Table to achieve a good seal. Tighten bolts until the rubber bead flange is compressed 1/8". Measure the gap between the rotating metal flange and pipe flange, then tightening until this space is decreased by 1/8". Keep in mind that it requires less torque load to seal the rubber bead than a full face rubber flange.

- Notes:** *Compressing the rubber sealing bead beyond 1/8" up to and including metal-to-metal contact between expansion joint flange and mating flange will result in premature failure.
- **Never attempt to tighten bolts while system is under pressure. All pressure must be relieved before attempting to tighten/re-tighten bolts. Refer to Bolt Torque Table for proper values

7. Storage:

Ideal storage is in a warehouse with a relatively dry, cool location. Store flanges face down on a pallet or wooden platform. Do not store other heavy items on top of the expansion joints. Ten year shelf life can be expected with ideal conditions. If storage must be outdoors, place on a wooden platform and joints should not be in contact with the ground. Cover with a tarpaulin.

8. Large Joint Handling:

Do not lift with ropes or bars through the bolt holes. If lifting through the bore, use padding or a saddle to distribute the weight. Make sure cables or forklift tines do not contact the rubber. Do not let expansion joints sit vertically on the edges of the flanges for any period of time.

9. Additional Tips:

- A.** Do not insulate/cover over a rubber expansion joint. This prevents inspection of the tightness of the joint bolting.
- B.** It is acceptable (but not necessary) to lubricate the expansion joint beaded end with a thin film of graphite dispersed in glycerin or water at time of installation to prevent damage.

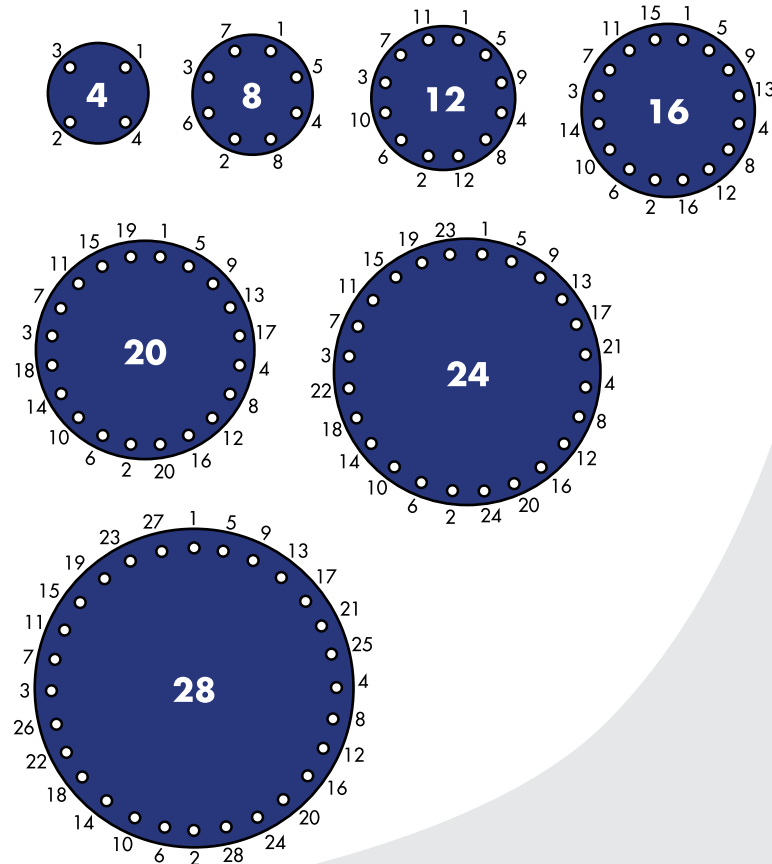
- C.** Do not weld in the near vicinity of a non-metallic joint.
 - D.** If expansion joints are to be installed underground, or will be submerged in water, contact manufacturer for specific recommendations.
 - E.** If the expansion joint will be installed outdoors, make sure the cover material will withstand ozone, sunlight, etc.
 - F.** Check the tightness of flanges two or three weeks after installation and retighten if necessary. Refer to Notes in Para 6. Bolting Torque.
 - G.** Expansion joint installation should be conducted by an authorized and qualified pipe fitter.
 - H.** While all expansion joints are guaranteed for a period of one year and designed for many years of service, it is suggested that expansion joints be routinely inspected based on service conditions.

Warning: *Expansion joints may operate in pipelines or equipment carrying fluids and/or gasses at elevated temperature and pressures and may transport hazardous materials. Precautions should be taken to protect personnel in the event of leakage or splash. Rubber joints should not be installed in areas where inspection is impossible. Make sure proper drainage is available in the event of leakage when operating personnel are not available.*

Bolt-Torque

		Bolt-Torque							
Nominal Pipe Size Expansion Joint I.D. Inch / (mm)		Step 1 FT-LBS (Nm)		Rest	Step 2 FT-LBS (Nm)		Rest	Step 3 FT-LBS (Nm)	
1	(25)	18	(25)	30 Min	30	(40)	60 Min	45-60	(60-80)
1.25	(32)	18	(25)	30 Min	30	(40)	60 Min	45-60	(60-80)
1.5	(40)	18	(25)	30 Min	30	(40)	60 Min	45-60	(60-80)
2	(50)	18	(25)	30 Min	30	(40)	60 Min	45-60	(60-80)
2.5	(65)	18	(25)	30 Min	35	(50)	60 Min	50-60	(70-80)
3	(80)	25	(35)	30 Min	45	(60)	60 Min	60-75	(80-100)
3.5	(90)	25	(35)	30 Min	45	(60)	60 Min	60-75	(80-100)
4	(100)	25	(35)	30 Min	45	(60)	60 Min	60-75	(80-100)
5	(125)	25	(35)	30 Min	45	(60)	60 Min	60-75	(80-100)
6	(150)	30	(40)	30 Min	50	(70)	60 Min	60-75	(80-100)
8	(200)	30	(40)	30 Min	50	(70)	60 Min	60-75	(80-100)
10	(250)	30	(40)	30 Min	50	(70)	60 Min	75-85	(100-115)
12	(300)	30	(40)	30 Min	50	(70)	60 Min	75-85	(100-115)
14	(350)	30	(40)	30 Min	60	(80)	60 Min	75-95	(110-130)
16	(400)	30	(40)	30 Min	60	(80)	60 Min	75-95	(110-130)
18	(450)	30	(40)	30 Min	60	(80)	60 Min	90-95	(120-130)
20	(500)	30	(40)	30 Min	65	(90)	60 Min	95-185	(130-250)
24	(600)	30	(40)	30 Min	65	(90)	60 Min	95-185	(130-250)
30	(750)	30	(40)	30 Min	65	(90)	60 Min	95-220	(130-300)

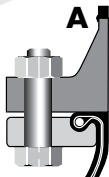
Tighten opposing nuts/bolts gradually according to the following sequence



Joints with Beaded End Flanges

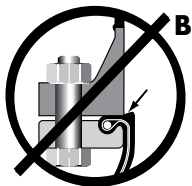
Right:

Flanges with correct ID help prevent damage to rubber.



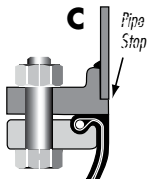
Wrong:

Insure mating flange I.D. is flush with rubber.



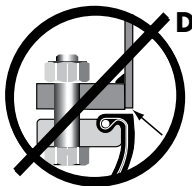
Right:

Weld neck flanges with correct ID prevent damage to rubber.



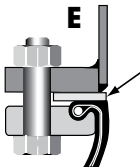
Wrong:

Uneven end of pipe can cause damage to rubber.



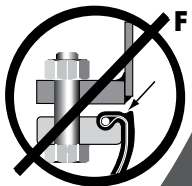
Right:

In case of B, D, F an additional metal gasket can be used to prevent damage to rubber.



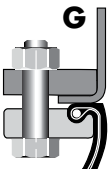
Wrong:

Inner edge of flanges damages rubber.



Right:

Well rounded smooth edge prevents damage to rubber.



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