

General Installation Instructions

Service and Conditions:

Make sure the expansion joint rating for temperature, pressure, vacuum, movements and selection of elastomer materials match the system requirements. Contact Twin City Hose 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, without external load. These products should not be installed "extended" on vacuum applications.

Alignment:

Expansion joints are not designed to make up for piping misalignment errors. Pipe 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.

Anchoring:

Anchors are required whenever a piping system changes direction. Expansion joints should be located as close as possible to the anchor points. If an anchoring system is not used, it is recommended that control rods be installed on the expansion joint to prevent excessive movements from occurring due to pressure thrust of the line.

Pipe Support:

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

Mating Flanges:

1. 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 dimensions of the expansion joint must match the breech opening.
2. A spherical rubber connector must be compressed 1/8" to 3/16" during installation in order to obtain a correctly installed face to face dimension.
3. Make sure mating flanges are clean and are flat faced type. When attaching beaded end flange expansion joints to raised face flanges, ring gaskets are required to prevent metal flange faces from cutting the rubber bead during installation.
4. Never install expansion joints next to wafer type check valves or butterfly valves. Serious damage to the rubber flange bead can result due to the lack of flange mating surface and or bolt connection.

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Bolt Torque:

Below are the minimum recommended torque values for non-metallic expansion joints with beaded end type flanges to achieve an adequate seal.

MS1 and MS2 Torque Data:

| Nominal Pipe Size | Bolt Torque | | | | |
|-------------------|-------------|---------|----------|---------|----------|
| | Step 1 | Reset | Step 2 | Reset | Step 3 |
| in. | ft • lbs | Minutes | ft • lbs | Minutes | ft • lbs |
| 1 | 18 | 30 | 30 | 60 | 45 - 60 |
| 1.25 | 18 | 30 | 30 | 60 | 45 - 60 |
| 1.5 | 18 | 30 | 30 | 60 | 45 - 60 |
| 2 | 18 | 30 | 30 | 60 | 45 - 60 |
| 2.5 | 18 | 30 | 35 | 60 | 50 - 60 |
| 3 | 25 | 30 | 45 | 60 | 60 - 75 |
| 3.5 | 25 | 30 | 45 | 60 | 60 - 75 |
| 4 | 25 | 30 | 45 | 60 | 60 - 75 |
| 5 | 25 | 30 | 45 | 60 | 60 - 75 |
| 6 | 30 | 30 | 50 | 60 | 60 - 75 |
| 8 | 30 | 30 | 50 | 60 | 60 - 75 |
| 10 | 30 | 30 | 50 | 60 | 75 - 85 |
| 12 | 30 | 30 | 50 | 60 | 75 - 85 |
| 14 | 30 | 30 | 60 | 60 | 75 - 85 |
| 16 | 30 | 30 | 60 | 60 | 75 - 85 |
| 18 | 30 | 30 | 60 | 60 | 90 - 95 |
| 20 | 30 | 30 | 65 | 60 | 95 - 185 |
| 24 | 30 | 30 | 65 | 60 | 95 - 185 |
| 30 | 30 | 30 | 65 | 60 | 95 - 220 |

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Tighten bolts in stages by alternating around the flange. Use the recommended torque values to achieve a good seal. Never tighten an expansion joint to the point that there is metal to metal contact between the expansion joint flange and the mating flange.

Note: Over-torquing bolts can cause deformation of the rubber expansion joint flanges, thus resulting in premature failure.

Storage:

1. Store expansion joints in a dry, cool place, such as a warehouse.
2. Store flange face down on a pallet or wooden platform.
3. Do not store other heavy items on top of expansion joints.
4. Ten year shelf life can be expected with ideal conditions.

Handling:

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

Additional Tips:

1. Insulation over non-metallic rubber expansion joints is not recommended. However, if the insulation is required, it should be made removable to permit easy access to the flange area in order to check the bolting.
2. It is acceptable, but not necessary, to lubricate the expansion joint flanges with a thin film of graphite dispersed in glycerin or water to ease disassembly at a later time.
3. Do not weld in the vicinity of a non-metallic expansion joint.
4. If an expansion joint is to be installed outdoors, make sure the cover material will withstand ozone and environmental elements. Materials such as EPDM and Chlorobutyl are recommended.

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5. If the expansion joint is to be installed underground, or will be submerged in water, contact Twin City Hose for specific guidelines.
6. Check the tightness of the retaining rings two or three weeks after installation and re-tighten as necessary after routine inspections.

Warning: Expansion joints may operate in pipelines or equipment carrying fluids or gases at elevated temperatures and pressures and may transport hazardous materials. Precautions should be taken to protect personnel in the event of leakage or splash. Rubber expansion joints should not be installed in areas where inspection is impossible.