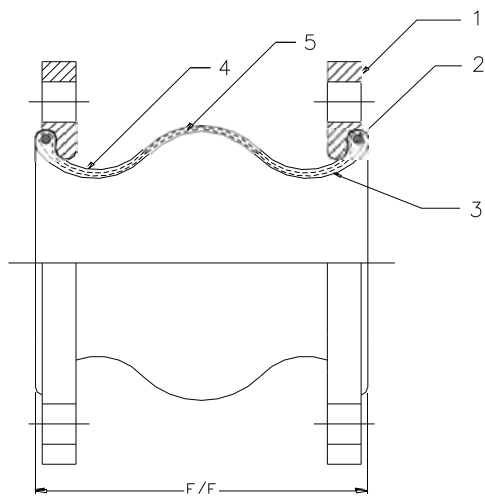


Rubber Expansion Joints

Installation Guide



Installation Instructions

Series AMS/AMT/AJS/AJT Expansion Joints

PREPARATION

1. **Check Application Criteria.** Double-check the performance limits of the expansion joint against the anticipated operating conditions. Expansion joints should never be subjected to operating conditions beyond the temperature, pressure, and/or vacuum service recommendations of API International. If the total motions due to initial installation and the movements of pipelines during system operation exceed the published maximum allowable movement, then the pipeline should be altered to reduce the initial installation movements. Also, the line should be anchored to EJMA (Expansion Joint Manufacturers Association) specifications to limit the pipe movements that the expansion joint must absorb. For elevated temperatures (above 110° F), contact API Sales for maximum operating pressures.
2. **Check Location.** Generally, the proper location of rubber expansion joints is installed close to a main anchor point. Following the joint in the line, a pipe guide, or series of guides, should be installed to keep the pipe aligned and prevent undue displacement (of the pipe).
3. **Check Expansion Joint.** Check the interior, exterior cover, and rubber beaded faces for damage or cracks prior to placing into service. The exterior cover is designed to keep harmful material from penetrating the carcass of the joint.
4. **Check Alignment.** Expansion joints are not designed to make up for piping misalignment errors and should be no greater than 1/8" in any direction. Misalignment of an installed expansion joint reduces the rated movements and can induce severe stress of the material properties, thus causing reduced service life and premature failure.
5. **Check Support.** Piping must be supported by hangers or anchors, so that its weight is not carried by the expansion joint.
6. **Check Mating Flanges.** Be sure that companion flanges to be mated with the flanges of the expansion joint are clean. Used parts should be carefully examined for reasonable smoothness, and any adhering particles of old gasket or other foreign material should be scraped off, taking care not to gouge or mutilate the flange surface. When attaching expansion joints to raised-face flanges, the use of composite gaskets are required to prevent metal flange faces from cutting the rubber bead during installation/operation.

Note: Never install expansion joints next to wafer type check or butterfly valves. Serious damage to the rubber beaded face can result due to the lack of flange mating surface and/or bolt connection.

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

Note: Some of this information has been replicated from the "Fluid Sealing Association Handbook" on Non-Metallic Expansion Joints.

DC# 0925

Installation Instructions

Series AMS/AMT/AJS/AJT Expansion Joints

INSTALLATION

Apply Lubricant. Expansion joints rubber beaded faces may be painted with a solution of graphite in water or glycerin to prevent adherence of joint to pipe flanges. Petroleum lubricants should not be used.

Insert Expansion Joints into Position. For flat-face mating flanges, gaskets are not required. If using raised-face mating flanges, use composite gaskets to prevent raised-face protrusion from cutting the rubber bead during installation/operation. Care must be taken when pushing the joint into the breach between the mating flanges so as not to roll the leading edge of the joint out of its flange groove. Do not bolt directly to another component with an elastomeric face or to a specialty flange without inserting a solid full-face metallic gasket.

Insert Bolts. Bolts should be inserted from the arch side (so that bolt heads are adjacent to arch) to ensure that bolts do not interfere with arch during periods of compression.

Tighten Bolts. Tighten all bolts in stages (gradually and equally) by alternating around the flange in a diagonal manner to the recommended torque values listed below. If a water-tight seal is not achieved after the final tightening (step 3), slightly tighten the nuts until leak is sealed¹. Do not over-tighten to the point where there is metal to metal contact between the rotating flange and the pipe flange². Check bolt tightness at least 24 hours after the system is started up, again after one week, and periodically every few weeks thereafter. As any rubber-like material takes a "set" after a period of compression, the bolts may loosen and result in a broken seal. In a hot and cold-water system, the bolts should be checked before changing from one medium to another.

RECOMMENDED BOLTING TORQUE* (AMS/AMT/AJS/AJT Series):

Size	Step 1 Torque FT-LBS	Step 1 Rest Period	Step 2 Torque FT-LBS	Step 2 Rest Period	Step 3 (Final) Torque FT-LBS
1" - 2"	20	30 Min	30	60 Min	30-45
2.5"	20	30 Min	35	60 Min	40-60
3" - 5"	25	30 Min	45	60 Min	45-60
6" - 8"	30	30 Min	50	60 Min	50-65
10" - 12"	30	30 Min	50	60 Min	55-80
14" - 16"	30	30 Min	55	60 Min	60-80
18"	30	30 Min	60	60 Min	70-90
20"	30	30 Min	65	60 Min	75-95
24"	30	30 Min	65	60 Min	80-100

Bolt Tightening - Add'l Notes:

1. Never attempt to tighten bolts while system is under pressure. All pressure must be relieved before attempting to tighten/re-tighten bolts.

2. Over compressing/crushing the rubber sealing bead to metal-to-metal contact between expansion joint flange & mating flange will result in premature failure.

"*" - Recommended Torque values are for reference only and may require more or less torque due to flange facing and other variables.

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Installation Instructions

Series AMS/AMT/AJS/AJT Expansion Joints

INSTALLATION - Continued

Control Rods.

For piping systems that are not anchored, control rods must be used. Control rods are always recommended as a safety precaution (even when the system is properly anchored and guided). Insulation over a non-metallic rubber expansion joint is not recommended.

Additional Tips.

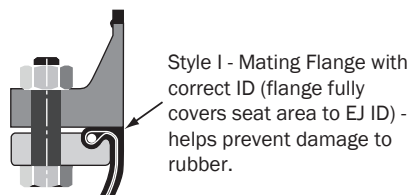
Insulation over a non-metallic rubber expansion joint is not recommended, however if required, it should be made removable to permit easy access for periodic inspection of body and flange area when necessary.

Do not weld in the vicinity of a non-metallic expansion joint.

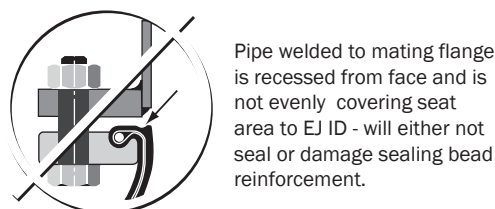
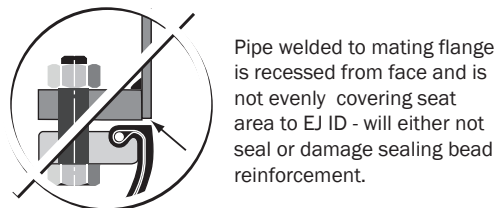
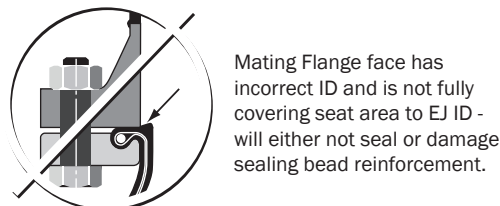
If the expansion joint is to be installed outdoors, appropriate outer cover material must be used to withstand the ozone, sunlight...etc.

Correct vs Incorrect Installation Tips.

Correct Installations



Incorrect Installations



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

Note: Some of this information has been replicated from the "Fluid Sealing Association Handbook" on Non-Metallic Expansion Joints.

DC# 0925