



Metal Expansion Joints Installation Instructions

ADDITIONAL TIPS:

1. Insulation or thermal blankets over a metal expansion joint should be supplied by the expansion joint manufacturer to preclude the use of corrosive chloride bearing insulation materials. Insulation should be installed to permit easy access to the flange area, to check bolting.
2. Do not weld in the near vicinity of a non-shrouded expansion joint without protecting the expansion joint from damaging weld splatter.
3. If an expansion joint is to be installed underground, or will be submerged in water, contact the manufacturer for specific guidelines.
4. Consider ordering a spare expansion joint. The cost of downtime of a critical expansion joint far exceeds the cost of a spare unit placed and protected in reserve on-site.
5. Standard Keflex™ expansion joints are shipped pre-set to handle 80% of their rated axial traverse in compression and 20% in extension. Install in this pre-set position as the ratio is proper for most heating and processing lines.
6. Whenever possible, install the expansion joint next to an anchor as indicated below not exceeding maximum distance to the 1st guide with at least two concentric pipe guides on the opposite side of the joint. Added guides are required to prevent bowing or bending of the pipe.
7. When an expansion joint is placed elsewhere in the line, at least two concentric guides must be used on each side of the joint with added joints installed as recommended below.
8. The inside of all piping must be clean before installing and testing the expansion joints. Expansion joints should not be subjected to hydrostatic pressure tests beyond their rated working pressure.
9. Secure all anchors and guides before testing. Remove shipping bars prior to testing.
10. Expansion joints must be removed from the lines while the system is being tested hydrostatically at pressure exceeding allowable working pressure.
11. Expansion Joints fabricated with flow liners must be installed with the flow arrow pointing in the same direction of the media flow.
12. Single externally pressurized expansion joints must be installed with the moving end adjacent to the moving end of the pipe responding to the thermal expansion induced during system heat-up.
13. Failure to install according to instructions will void warranty.

PIPE GUIDES—SPACING DIAGRAM

MAXIMUM SPACING OF CONCENTRIC PIPE GUIDES

Pipe Size	Max Dist. EJ to 1st Guide/Anchor	Approx. Dist. 1st to 2nd Guide	Approximate Distance Between Additional Pipe Guides			
			@ 50 PSI	@ 100 PSI	@ 150 PSI	@ 300 PSI
2"	8"	2'4"	32	23	18	15
2-1/2"	10"	2'11"	35	26	22	20
3"	1'	3'6"	38	28	23	17
3-1/2"	1'2"	4'1"	45	35	27	19
4"	1'4"	4'8"	52	38	31	22
5"	1'8"	5'8"	63	45	38	25
6"	2'	7"	68	48	40	28
8"	2'8"	9'4"	87	62	45	38
10"	3'4"	11'8"	107	75	60	48
12"	4'	14'	118	86	70	50

Note: All guides are shipped unassembled to save field labor time.



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STORAGE:

1. Store expansion joints in a dry/cool location 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 joint (s).
4. Ten-year shelf life can be expected with ideal conditions.

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. Do not let expansion joints sit vertically on the edges of the flanges for any period of time. Do not lift on the shipping restraints.

SERVICE CONDITIONS:

Make sure the expansion joint rating for temperature, pressure, movements, and selection of materials match the system requirements. Contact the manufacturer if the system requirements exceed those of the expansion joint selected.

ALIGNMENT:

Expansion joints are not designed to make up for piping misalignment errors. Check with the manufacturer if piping misalignment is present.

ANCHORING:

The main function of expansion joints is to compensate for axial pipe thermal expansion. Keflex™ metal expansion joints must have the protection of adequate anchoring against the internal and thrust pressures of the media to prevent damage. Anchoring must be installed as close to the down stream end of the expansion joint as possible, with the originating equipment serving as the opposite anchor. Anchors must prevent pipe movement in any direction. Hangers or pipe pedestals cannot be considered to be anchors as they offer no restriction against side or end motion.

When designing an anchor for a Keflex™ metal expansion joint, consult the internal thrust force table from the appropriate expansion joint catalog. The weight of piping, valves, and media, as well as the resistance of the piping to deflection, must be included as part of the design weight and strength of an anchor.

Anchors are required whenever a piping system changes direction. Expansion joints should be located as close as possible to anchor points. For additional expansion joint protection, 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.

GUIDES:

Expansion joints must be properly guided and anchored in accordance with EJMA standards. Refer to ' Pipe Guides Spacing Diagram' on following page.

PIPE SUPPORT:

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

MATING FLANGES:

Install the expansion joint flange against the mating pipe flanges and install bolts so that the bolt head is against the expansion joint flange. Bolts should be installed from the bellows side (so that the bolt heads are adjacent to the bellows) to insure that the bolts do not interfere with the bellows during periods of compression. Flange-to-flange dimensions of the expansion joint must match the required opening.

Make sure mating flanges are clean and are matched to the type supplied with the expansion joint. Gaskets of appropriate material, size and temperature ratings must be used in all flange-to-flange type installations.

BOLT TORQUE:

Tighten bolts in stages by alternating around the flange. Never tighten an expansion joint to the point that there is metal-to-metal contact between the expansion joint flange and the mating flange.

SHIPPING RESTRAINTS:

The expansion and compression movements are preset at the factory. The shipping restraints protect the expansion joint in its neutral position prior to installation. Remove the shipping restraints after installation and before hydro-testing the system.