



TOZEN INDUSTRIAL COMPANY LIMITED

Product: Stainless Steel Expansion Joint

Document: Handling and Installation

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1.0 General

Handling and installation of expansion joints need particular care and shall be carried out by experienced staff.

Damage to expansion joints, especially the bellows, shall be avoided, in order that the full pressure reliability and service life is achieved.

The manufacturer's authorization shall be obtained before any repairs are carried out.


2.0 References and standards

The following standards refer the requirements of EJMA and DIN EN 14917

3.0 Packaging and storage

Suitable packaging shall be provided for expansion joints, to ensure that there is protection during transport and storage from the effects caused by dirt or aggressive atmospheres.

Transport safety devices or pretension or shipping bars shall not be removed before installation.

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4. Installation instruction

Metal bellows expansion joints have been designed to absorb a specified amount of movement by flexing of the thin-gauge convolutions. If proper care is not taken during installation, it may reduce the cycle life and the pressure capacity of the expansion joints which could result in an early failure of the bellows element or damage the piping system.

The following recommendations are included to avoid the most common errors that occur during installation. When in doubt about an installation procedure, contact the manufacturer for clarification before attempting to install the expansion joint.

DO'S

1. Inspect for damage during shipping, i.e., dents, broken hardware, water marks on carton, etc.
2. Store in clean dry area where it will not be exposed to heavy traffic or damaging environment.
3. Use only designed lifting lugs.
4. Make the piping system fit the expansion joint. By stretching, compressing, or offsetting the joint to fit the piping, it may be overstressed when the system is in the service.
5. It is good practice to leave one flange loose until the expansion joints has been fitted into position. Make necessary adjustment of loose flange before welding.
6. Install joint with arrow pointing in the direction of flow.
7. Install single Van Stone liners pointing in the direction of flow. Be sure to install a gasket between the liner and Van Stone flange as well as between the mating flange and liner.
8. With telescoping Van Stone liners, install the smallest I.D. liner pointing in the direction of flow.
9. Remove all shipping devices after the installation is complete and before any pressure test of the fully installed system.
10. Remove any foreign material that may have become lodged between the convolutions.
11. Refer EJMA standards for proper guide spacing and anchor recommendations.

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DON'T

1. Do not drop or strike carton.
2. Do not remove shipping bars until installation is complete.
3. Do not remove any moisture-absorbing desiccant bags or protective coating until ready for installation.
4. Do not use hanger lugs as lifting lugs without approval of manufacturer.
5. Do not chains or any lifting device directly on the bellows. Protect with wet chloride-free insulation.
6. Do not use cleaning agent that contain chlorides.
7. Do not use steel wool or wire brushed on bellows.
8. Do not force-rotate one end of an expansion joint for alignment of bolt holes. Ordinary bellows are not capable of absorbing torque.
9. Do not hydrostatic pressure test or evacuate the system before installation of all guides and anchors.
10. Pipe hangers are not adequate guides.
11. Do not exceed a pressure test of 1.5 times the rated working pressure of the expansion joint.
12. Do not use shipping bars to retain thrust if tested prior to installation.

Unrestrained expansion joints

Unrestrained expansion joints under pressure will exert a considerable axial force on the pipeline, i.e. anchor. It is essential that checks are carried out when the expansion joint is first pressurized to ensure that there is no unforeseen stretching of the bellows. If unforeseen movement is apparent, then the pipe guides or anchors shall be examined to ensure that they have been installed correctly and sufficiently designed for the duty.

Only axial pipe guides or anchors shall be used adjacent to an unrestrained expansion joint.

Restrained expansion joints

Special instructions shall be observed for the installation of hinged expansion joints. It is important that direction of the pipe movement is perpendicular to the axial of the pins.