



INSTALLATION INSTRUCTIONS FOR EXPANSION JOINTS

The most critical phases of the expansion joint installation are as follows :

- a) Care shall be exercised to prevent any damage to the thin bellows section, such as dents, scores, arc strikes and weld splatter.
- b) The expansion joint is designed for a specific movement capability. No other movement of the joint shall be imposed.
If such movements occur this can result in system malfunction, and damage the bellows or other components in the system. Specifically, cyclic life can be substantially reduced, forces imposed on adjacent equipment may exceed their design limits, internal sleeve clearances may be adversely affected, and the pressure capacity and stability of the bellows may be reduced.
- c) Any field pre-positioning shall be performed in accordance with specific instructions which include both direction and magnitude of movement.
- d) Anchors, guides and pipe supports shall be installed in strict accordance with the piping system drawings. Any field variance from planned installation may affect proper functioning of the expansion joint and must be brought to the attention of the piping designer for resolution.
- e) The expansion joint, if provided with internal sleeve, shall be installed with the correct orientation with respect to flow direction.
- f) Once the pipeline anchors or other fixed points are in place and the piping is properly supported and guided, the expansion joint shipping restraints should normally be removed in order to allow the expansion joint to compensate for changes in ambient temperature during the remainder of the construction phase.

Inspection prior to system pressure test

A careful inspection of the entire piping system shall be made with emphasis on the following :

- a) Are anchors, guides and supports installed in accordance with the system drawings ?
- b) Is the proper expansion joint in its correct location?
- c) Is the expansion joint flow direction and pre-positioning correct?
- d) Have the expansion joint shipping restraints been removed?
- e) If the system has been designed for gas, and is to be tested with water, has provision been made for proper support of the additional dead weight load on the piping and expansion joint?
Some water may remain in the bellows convolutions after the test. If this is detrimental to the bellows or system operation, have means been provided to remove such water?
- f) Are all guides, supports and expansion joints free to permit pipe movement?
- g) Has any expansion joint been damaged during handling and installation?
- h) Is any expansion joint misaligned? This can be determined by measuring the joint overall length, inspection of the convolutions geometry, and checking clearances at critical points on the expansion joint and at other points in the system.
- i) Are the bellows and other movable portions of the expansion joint free of foreign material?

Inspection during and immediately after system pressure tests

WARNING : Extreme care must be exercised while inspecting any pressurized system or component.

A visual inspection of the system shall include for the following :

- a) Evidence of leakage or loss of pressure.
- b) Distortion or yielding of anchors, expansion joint hardware, bellows and other piping components.
- c) Any unanticipated movement of the piping due to pressure.
- d) Evidence of instability (squirm) in the bellows.
- e) The guides, expansion joints and other movable parts shall be inspected for evidence of binding.
- f) Any evidence of abnormality or damage shall be reviewed and evaluated by the piping designer.

In case of problem or doubt, please do not hesitate to request our technical department.