

ASSEMBLED FABRIC EXPANSION JOINT INSTALLATION INSTRUCTIONS

Weld In Design

Please read entire document prior to beginning Expansion Joint Installation. The recommendations in this document are to be used as a guide. Please use these instructions in conjunction with the approved drawing provided by U.S. Bellows. The approved drawing should be considered the governing document.

1. RECEIVING AND STORAGE

Follow U.S. Bellows' Receiving and Storage Instructions located at the end of this document.

2. PRE-INSTALLATION CHECKS

- Confirm dimensional data per U.S. Bellows approved drawing.
- Confirm duct/duct flanges are in good condition.
- Confirm duct/duct flanges are lined up correctly (ensure that lateral displacement and angular movement do not exceed agreed specifications)
- Prior to installing the expansion joint frames, the opening into which the expansion joint will be installed must be inspected to verify that the opening is in accordance with design tolerances. The expansion joint is not designed to accommodate installation misalignment, unless clearly specified as a design requirement.
- Make available the following tools/equipment to simplify the installation:
 - Suitable/safe scaffolding
 - Lifting equipment (fork lift, crane, hoist)
 - Drill
 - Come along
 - Rope
 - Pry Bar

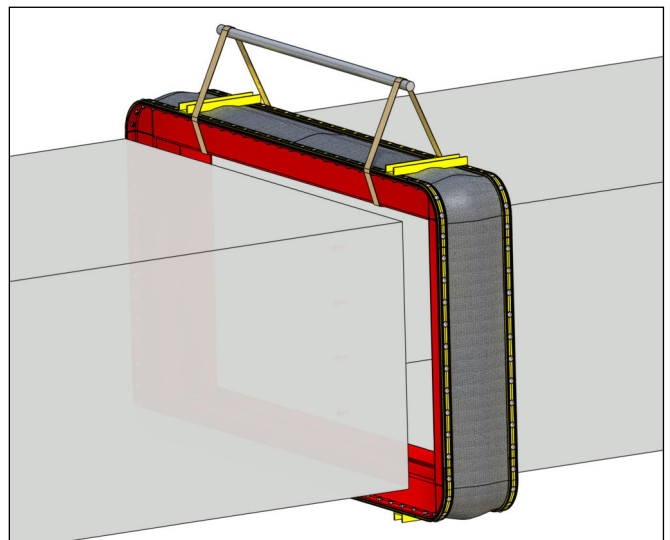
3a. EXPANSION JOINT INSTALLATION

- Use the U.S. Bellows drawing as a guide for dimensional information.
- Clean duct/flange surfaces and prepare for welding or bolting.
- Using proper lift equipment, attach suitable lifting "straps" to the expansion joint. Do not lift the expansion joint using the shipping bars.
- If the expansion joint has a liner, make certain that the flow arrow of the expansion joint/liner is in the proper system flow direction.

3a. ASSEMBLED EXPANSION JOINT INSTALLATION -- WELD IN DESIGN DUCT IN PLACE

The following instructions are used when ducting is in place and cannot be moved for expansion joint installation.

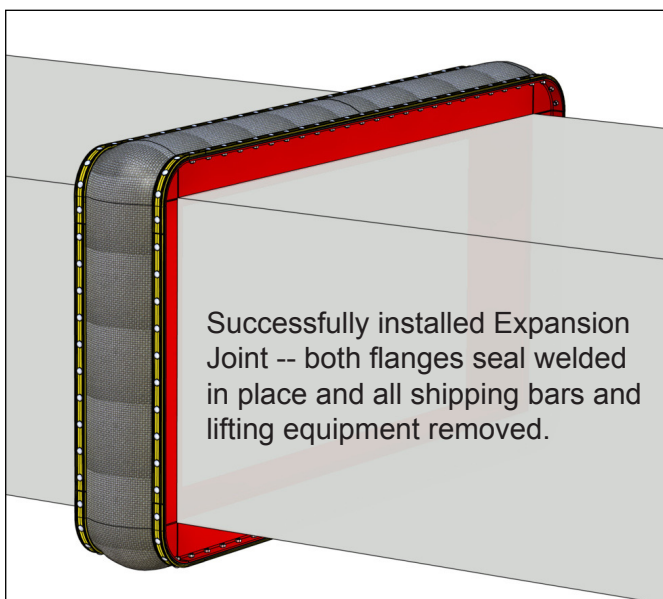
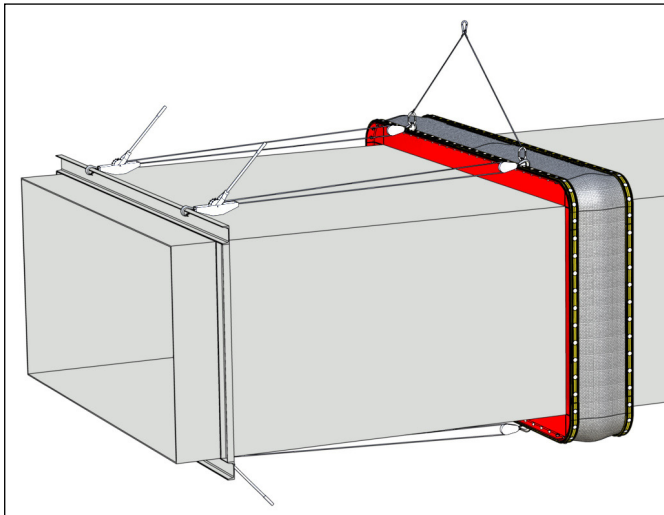
- Lift expansion joint into place using sufficient straps.
- Fit up and tack weld one flange of the expansion joint into place. During any welding operation, protect fabric belt material from potential weld splatter.



3a. ASSEMBLED EXPANSION JOINT INSTALLATION -- WELD IN DESIGN DUCT IN PLACE

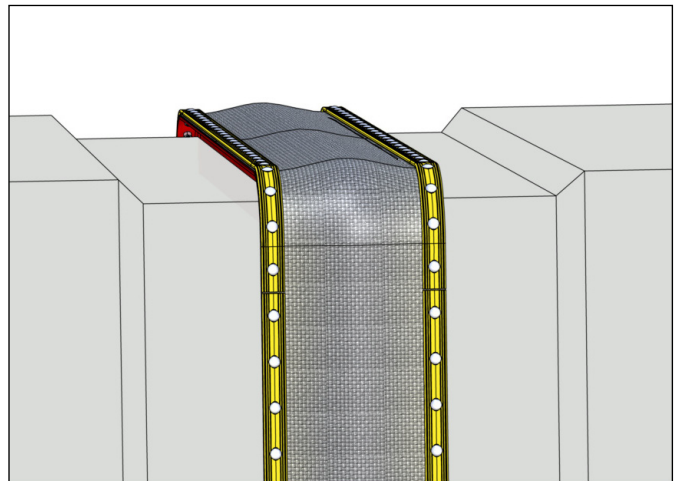
Create rigging on the unattached flange and secure with suitable lifting device.

- Remove shipping bars and initial lifting straps.
- Use “come along” to pull unattached flange into position.
- Tack weld flange into place.
- Seal weld both flanges per U.S. Bellows drawing.



PRE-START UP INSPECTION

- Verify all nuts and bolts are tightened correctly.
- Check for surface damage on the fabric belt.
- Remove all debris from expansion joint—i.e. loose nuts & bolts, loose shims, tools, etc...
- Remove any obstructions near the expansion joint which may prevent proper air flow and cause overheating.
- Verify shipping bars have been removed.
- Do not insulate over the fabric expansion joint unless specified by the U.S. Bellows drawing (see below for acceptable duct insulation design). In general, the external insulation should allow access to the belt for inspection and replacement. In high temperature applications, insulation should be designed to allow thermal convection in the area of the belt attachment. In applications where the temperature is near the dew point of the gas, the design should minimize cold spots which could lead to corrosion.



ASSEMBLED FABRIC EXPANSION JOINT INSTALLATION INSTRUCTIONS

Bolt In Design

Please read entire document prior to beginning Expansion Joint Installation. The recommendations in this document are to be used as a guide. Please use these instructions in conjunction with the approved drawing provided by U.S. Bellows. The approved drawing should be considered the governing document.

2. PRE-INSTALLATION CHECKS

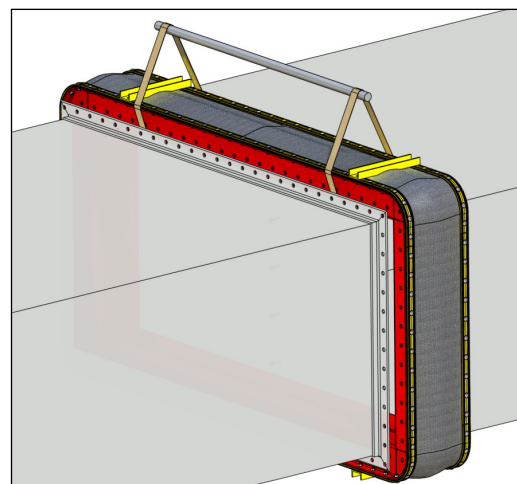
- Confirm dimensional data per U.S. Bellows approved drawing.
- Confirm duct/duct flanges are in good condition.
- Confirm duct/duct flanges are lined up correctly (ensure that lateral displacement and angular movement do not exceed agreed specifications)
- Prior to installing the expansion joint frames, the opening into which the expansion joint will be installed must be inspected to verify that the opening is in accordance with design tolerances. The expansion joint is not designed to accommodate installation misalignment, unless clearly specified as a design requirement.
- Make available the following tools/equipment to simplify the installation:
 - Suitable/safe scaffolding
 - Lifting equipment (fork lift, crane, hoist)
 - Drill
 - Come along
 - Rope
 - Pry Bar

3b. EXPANSION JOINT INSTALLATION

- Use the U.S. Bellows drawing as a guide for dimensional information.
- Clean duct/flange surfaces and prepare for welding or bolting.
- Using proper lift equipment, attach suitable lifting "straps" to the expansion joint. Do not lift the expansion joint using the shipping bars.
- If the expansion joint has a liner, make certain that the flow arrow of the expansion joint/liner is in the proper system flow direction.

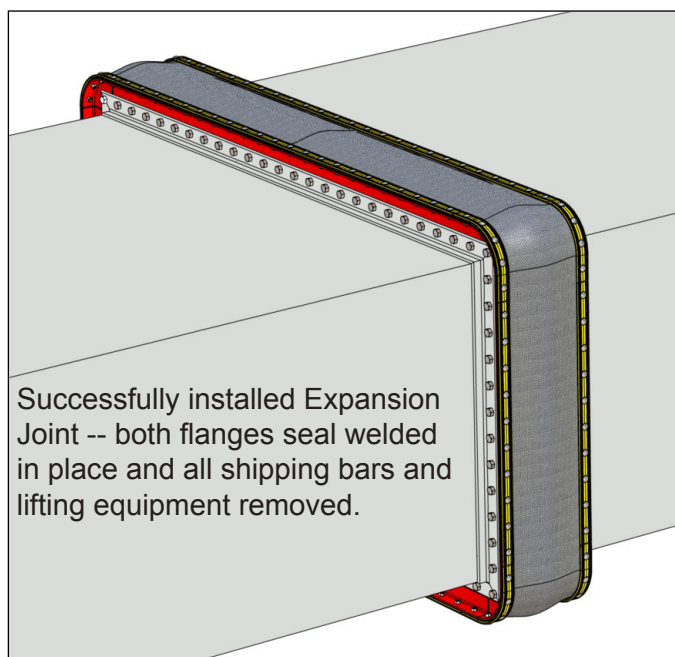
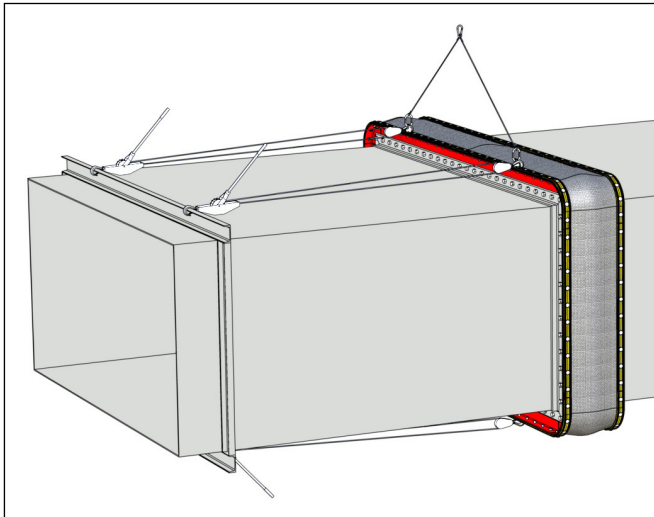
3b. ASSEMBLED EXPANSION JOINT INSTALLATION -- BOLT IN DESIGN DUCT IN PLACE

- Use the U.S. Bellows drawing as a guide for dimensional information.
- Clean duct/flange surfaces and prepare for welding or bolting.
- Using proper lift equipment, attach suitable lifting "straps" to the expansion joint. Do not lift the expansion joint using the shipping bars.
- If the expansion joint has a liner, make certain that the flow arrow of the expansion joint/liner is in the proper system flow direction.



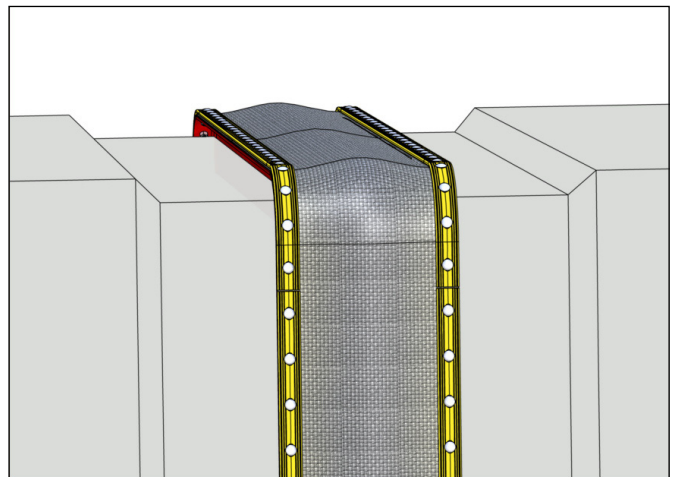
3b. ASSEMBLED EXPANSION JOINT INSTALLATION -- BOLT IN DESIGN DUCT IN PLACE

- Create rigging on the unattached flange and secure with suitable lifting device.
- Remove all shipping bars.
- Use “come along” to pull unattached flange into position.
- Bolt flange into place.
- Tighten all bolts to correct loading requirements.



PRE-START UP INSPECTION

- Verify all nuts and bolts are tightened correctly.
- Check for surface damage on the fabric belt.
- Remove all debris from expansion joint—i.e. loose nuts & bolts, loose shims, tools, etc...
- Remove any obstructions near the expansion joint which may prevent proper air flow and cause overheating.
- Verify shipping bars have been removed.
- Do not insulate over the fabric expansion joint unless specified by the U.S. Bellows drawing (see below for acceptable duct insulation design). In general, the external insulation should allow access to the belt for inspection and replacement. In high temperature applications, insulation should be designed to allow thermal convection in the area of the belt attachment. In applications where the temperature is near the dew point of the gas, the design should minimize cold spots which could lead to corrosion.



FABRIC EXPANSION JOINT RECEIVING AND STORAGE INSTRUCTIONS

UNLOADING AND RECEIVING INSPECTION

It is the purchaser's or receiver's responsibility to witness the unloading of the expansion joints and receiving inspection to see if there is visual damage to the pallet, box or crate (shipping container) in which the expansion joints were shipped. Any such damage is to be noted on the trucker's acknowledgement of receipt of the shipment. Failure to note visual damage to the shipping container can prevent recovery from the shipping company for damage in transit and such unreported damage becomes the responsibility of the purchasing or receiving entity.

If visual damage to the container is apparent, the trucker's acknowledgement of receipt must be clearly noted as such. The container should be opened and if the contents have been damaged, they should be photographed along with the container. Large expansion joint assemblies may be shipped without a pallet or container of any kind. Under all circumstances, any shipping damage must be immediately reported to Customer Service at U.S. Bellows, 6 U.S. Bellows, (855) 591-0906 and the photographs emailed to sales@usbellows.com. U.S. Bellows will analyze the damage and provide further instructions.

STORAGE

Expansion Joints should be stored in a clean and dry environment. However, as a minimum, expansion joints must be stored so that water does not penetrate any closed container. Expansion joints shipped on pallets or shipped without a pallet may be stored out of doors, however it is extremely important that flow liners be in a downward position. Expansion joints with overlapping flow liners should be covered to prevent water from accumulating in the liner.

INSTALLATION

Follow ALL U.S. Bellows Installation Instructions provided. Contact U.S. Bellows if Installation Instructions are lost.

SHIPPING BARS AND / OR INTERNAL SHIPPING RESTRAINTS

Shipping bars and / or Internal shipping restraints will be painted yellow and marked "Remove after Installation".

DO NOT REMOVE THE SHIPPING BARS OR INTERNAL RESTRAINTS UNTIL THE EXPANSION JOINT HAS BEEN COMPLETELY INSTALLED.

All assembled expansion joints are shipped to specified "Pre-set" installation dimensions and it is important that the expansion joints are installed accordingly. The "Pre-set" can be Axial (compression or extension), or Lateral, or Angular, or any combination thereof. Expansion Joints will be shipped "Pre-set" in accordance with approved drawing requirements. If the shipping bars are removed prior to completion of installation by bolting or welding, the expansion joint may "move to a neutral position" and will not function as designed and can cause premature or immediate expansion joint failure. For Installation Questions or Clarifications Phone (855) 591-0906 and Refer to the Job Number.

