Corruflex-Metal Bellows Expansion Joints

CORRUFLEX WARRANTY

ADSCO Manufacturing LLC warrants that products furnished will, at the time of delivery, be free from defects in material and workmanship. ADSCO will repair or replace any defects which occur within one year from the date of installation or eighteen months from the date of shipment, whichever occurs first.

Includes the Following Models

Non-Equalizing CorruFlex	(Model N)
Equalizing CorruFlex	(Model E)
Externally Pressurize	(Model PM)
Low Convolute	(Model LC)

Examination and repair or replacement of the product will be on location or in ADSCO's facilities, at ADSCO's option. Products to be examined, and replaced or repaired at ADSCO's facilities must be returned to ADSCO by Purchaser within the warranty period, the transportation charged prepaid. If the examined equipment is found not to be defective or is not, for some other reason, within the warranty coverage, ADSCO service time expended on and off location will be charged to Purchaser.

Purchaser shall be responsible for proper installation of the units and operating within the design limits of each unit.

Correction of defects by repair or replacement shall constitute ADSCO's sole and exclusive responsibility to Purchaser under the Warranty and ADSCO shall in no event be liable for injuries to persons or property or direct, incidental or consequential damages caused by use of the product.

WARRANTY VOID IF

1. Not installed in accordance with published instructions.
2. Subjected to conditions beyond those on nameplate.
3. Any modifications made in joint after leaving factory.
4. Weld spatter or denting damage to bellows.
5. Foreign objects are lodged between corrugations (especially where equalizing rings are employed).
6. Subjected to stress corrosion or other types of corrosion.

PRIOR TO INSTALLATION

1. Inspect for damage during shipment, i.e., Dents, broken hardware, loose shipping bars.
2. **Shipping bars are installed on an expansion joint to maintain shipping length and give the joint stability during transit and installation. Do not remove shipping bars until the installation is complete.**
3. Expansion joints rated for axial compression only (see name plate) are shipped in the fully extended position (maximum overall length). This length must not be exceeded under any circumstances.
4. Expansion joints rated for axial extension and possibly axial compression are factory positioned and any extension or compression of bellows length must be within name plate rating.

PRIOR TO INSTALLATION (Continued)

5. Verify that the opening for which the expansion joint was designed does not exceed the installation length of the expansion joint: make the piping system fit the expansion joint.
6. If at any time after installation of the expansion joint the pipe line temperature may be below installation temperature, it will be necessary to precompress the expansion joint 1/8" per 100 feet of pipe between anchors for each 10 degree drop below installation temperature. Where more precise instructions are required, consult the ejma standards or adsco sales department.
7. To compress expansion joints, break tack weld of shipping bars at one end only. Using plates at each end with the full threaded rod and nuts, draw in joints as required, and re-tack bars to hold precompressed position while being installed. After installation, remove and discard all shipping bars.
8. Expansion joints for combined movements (axial and lateral or axial and angular only) need not be precompressed for the lateral or angular component of the movement, but must be compressed for the axial component (see name tag) in accordance with the above. Joints for lateral or angular movement only are shipped in a ready to install position. Check with your engineering department for any special factory-issued instructions.
9. For a weld end expansion joint, the pipe ends must be clean, smooth, and parallel to each other.
10. For a flanged end expansion joint, it is good practice to leave one flange loose until the joint has been fitted into position. Make any necessary adjustment to the loose flange prior to welding.
11. **Shipping bars (painted yellow) are not designed to be lifting devices. Never use a chain or any other handling devices directly on the bellows element or bellows cover.**

INSTALLATION

1. Remove any protective cover from ends of expansion joint.
2. When an internal flow sleeve is installed in the expansion joint, orient the joint with **flow arrow pointing in direction of flow.**
3. Install single van stone sleeves pointing in direction of flow. Be sure to install proper gasket between sleeve and mating flange. (Gasket is furnished between sleeve and van stone flange.)
4. With telescoping sleeves, install the smallest I.D. sleeve pointing in the direction of flow.
5. Weld End Expansion Joints:
   (a) **Prior to welding, cover bellows element with a wet chloride-free non-asbestos cloth** to prevent damage to bellows from weld spatter and arc strikes.
   (b) Using proper electrode, weld the expansion joint to adjacent piping. **Do not utilize bellows to correct for misalignment of piping unless this has been considered in the design of the expansion joint.**
6. Flanged End Expansion Joints:
   (a) Orient expansion joint flanges so that the bolt holes are aligned with the mating flanges. **Do not force expansion joint to match the bolt holes of the mating flange.** This causes torsion on the bellows and will severely reduce the bellows capability during the operation and may cause premature failure of the expansion joint.
   (b) Install gaskets and bolt to the required torque. Caution: do not use graphite impregnated gaskets to contact with stainless steel.

AFTER INSTALLATION, BUT PRIOR TO, HYDRO TEST

1. Be sure all anchors, guides and pipe supports are secure and in accordance with piping system drawings, prior to hydro test.
2. **Anchors must be designed for the test pressure thrust loads.** (1.5 X rated working pressure x bellows thrust area)
3. If the system is not designed for a liquid flow media, check to determine if the piping and/or expansion joint may require additional temporary support due to weight of water during hydro testing.
4. **Remove shipping bars (painted yellow) prior to hydro testing.** Shipping bars are not designed for hydrostatic pressure thrust loads.
5. For the model pm joint, make sure that the tack welds that held the shipping bars in place are ground down smooth.
6. When hydrostatically testing, **use only chloride-free water** (attack may occur with chloride contents as low as 3 ppm).
7. Hydrostatic test pressure is not to exceed 1.5 Times the rated work pressure shown on name tag.

PIPE GUIDE SPACING

1. ADSCO recommends that for single Corruflex expansion joints the first guide be located within four (4) pipe diameters from the joint and the second guide be located within a distance of fourteen (14) pipe diameters from the first guide.
2. ADSCO recommends that for Pressure Master Corruflex expansion joints the first guide be located within fourteen (14) pipe diameters from the joint. The remaining follow intermediate guide spacing.
3. Intermediate guide spacing shall be in accordance with ADSCO guide bulletins or reference EJMA Standards.
4. **Pipe hangers are not adequate guides, but are necessary in addition to guides for pipe support.**

SPECIAL CONSIDERATIONS FOR EACH MODEL

1. **NON EQUALIZING – (N)**
   If the amount of required precompression is less than 1/16” per corrugation for 3” – 5” sized units and 1/8” per corrugation for 6” or larger sized units, then precompression of the expansion joint will not be required (Reference #6 Prior to Installation).
2. **EQUALIZING – (E)**
   Same as above.
3. **PRESSURE MASTERS – (PM)**
   Liners and covers are integral parts of the “PM” design. The liners in this design do not require any installation, and allow for bi-directional flow.
4. **LOW CONVOLUTE – (LC)**
   Just as on the Non-Equalizing design with an exposed bellows element, be cautious not to dent or get weld spatter on the corrugations of the bellows.

GENERAL PRECAUTIONS

1. Some types of insulation leach chlorides when wet. Only chloride free insulation materials should be used for insulating an expansion joint.
2. Solvents, soaps and cleaning agents may contain chlorides and can cause stress corrosion, which appears only after a bellow is put into service.
3. Do not use a bellows that is dented or damaged.
4. Do not attempt any mechanical or welding repair to bellows.
5. If uncertain about the proper use or installation of this expansion joint, contact: **ADSCO at 716-827-54550 for assistance.**

THIS UNIT HAS BEEN INSPECTED FOR MATERIALS AND WORKMANSHIP AND TESTED

To _____ PSIG. Inspector_____ Date_____

Adsco Order No. _____

Serial No. _____ Item No. _____

Model _____

Size _____ No. Corr. _____

Overall L. _____

Max. Press. _____ Max. Temp. _____ Axial_____ Lat._____ Ang ._____

Bellows Matl. _____ Sleeve Matl. _____ Cover _____

Tag _____

ADSCO

Powering a Third Century of Innovation.

4979 Lake Avenue, Buffalo, New York 14219 • 716.827.5450 • adscomfg.com