EXPANSION JOINT PRODUCTS

Triad Bellows
DESIGN + MANUFACTURING

LOW PRESSURE AND HIGH PRESSURE METAL EXPANSION JOINTS

Low pressure and high pressure Metal Expansion Joints are designed and manufactured in strict accordance with the Expansion Joint Manufacturers Association (EJMA) latest 10th edition. At Triad Bellows we believe that design integrity is key to building metal bellows expansion joints that will last. Customers around the world rely on TBD&M for dependable metal expansion joint products engineered for maximum fatigue cycle life.

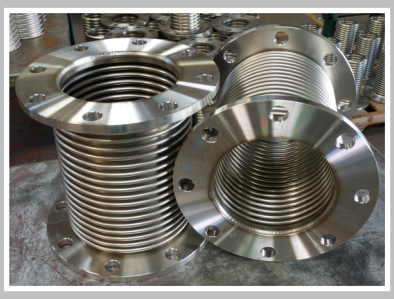
With the high costs associated with system down time why just settle for a catalog expansion joint? Let the design team at Triad Bellows engineer your expansion joints for the ultimate in performance, with no additional cost or manufacturing time.

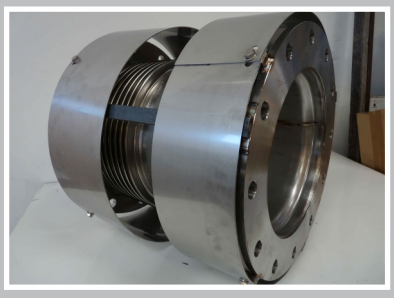
CUSTOM DESIGNED AND MANUFACTURED

- Size range = 2" through 110" diameter
- Pressure range full vacuum to 600 psig
- Design: EJMA10th Edition
- Bellows: Single and multi-ply to 10 plies
- Welding: ASME Section IX
- Materials: Most stainless and exotic alloys
- All expansion joints 100% leak tested

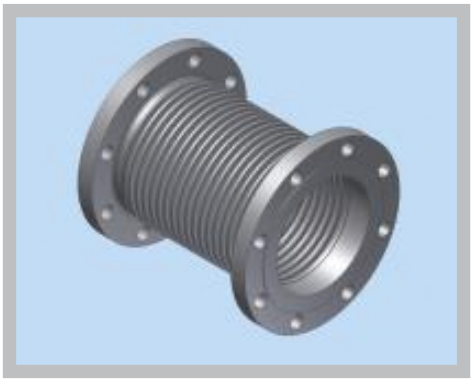
EXPRESS SERVICE

TOLL FREE 888-866-1080





SINGLE EXPANSION JOINTS

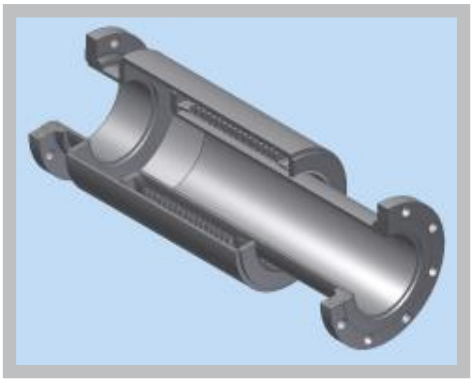


This basic expansion joint is made by attaching fittings to a single metal bellows. Triad Bellows will incorporate any weldable fitting into your expansion joint design. **Single Metal Bellows Expansion Joints** are most commonly used for axial compression and extension but may also be designed for lateral offset and angular movement. Our design engineers commonly utilize multi-ply metal bellows for the maximum cycle life. Tie Rods, flow liners and covers can be added to the single metal expansion joint to enhance the performance capabilities.

IN-LINE PRESSURE BALANCED EXPANSION JOINTS

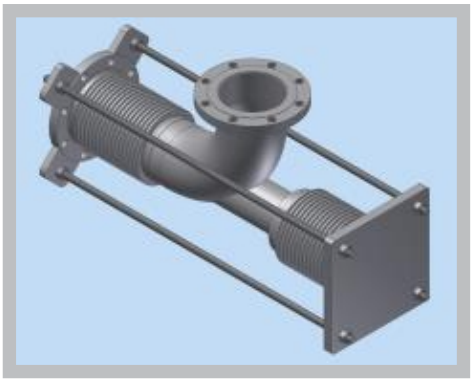
The **In-Line Pressure Balanced Metal Bellows Expansion Joint** is used in a straight piping run to absorb axial movement with minimal thrust forces imposed on the system anchors. Each In-Line Pressure Balanced Expansion Joint is individually designed for specific pressure, temperature and axial compression rating. The most common fitting configurations are flanges or beveled weld ends. As with all metal expansion joints that Triad manufactures, your expansion joint order will be 100% leak tested.

EXTERNALLY PRESSURIZED EXPANSION JOINTS



Externally Pressurized Expansion Joints are the perfect choice for large amounts of axial compression or extension. Triad Bellows can design externally pressurized metal bellows expansion joints with over 18" total axial movement capability. Other benefits of an externally pressurized expansion joint are that they have a built in guiding system eliminating the need for the first pipe guide in a piping run. For steam applications, where usually a flow liner is necessary an externally pressurized expansion joint, due to its construction, eliminates this requirement. This type of metal expansion joint also incorporates an outer casing to contain the pressure which also protects the metal bellows from damage.

ELBOW PRESSURE BALANCED EXPANSION JOINTS

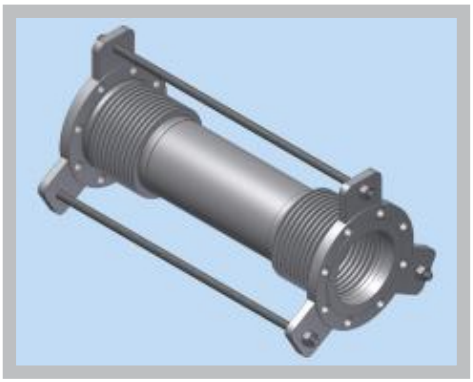


Unlike any of the In-Line Pressure Balanced Expansion joints, serving only straight pipe lines where lateral deflection MUST be eliminated, **90° Elbow Pressure Balanced Joints** can absorb both **axial compression and lateral offset**. This expansion joint is similar to the tied universal expansion joint with a balancing bellows that almost totally eliminates the pressure thrust on the anchors. This metal expansion joint design is recognized and recommended by EJMA, the Expansion Joint Manufacturers Association.

UNIVERSAL EXPANSION JOINTS

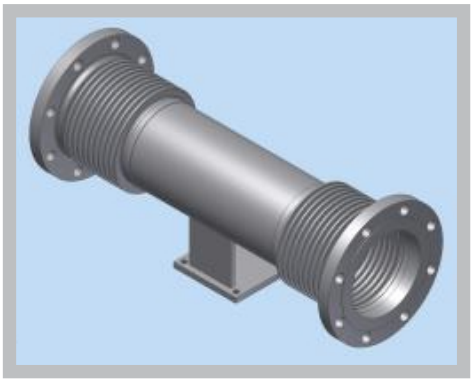
Universal Metal Bellows Expansion Joints are constructed with two metal bellows of equal length separated by a center pipe. This expansion joint design will accept large amounts of lateral offset in multiple planes. The amount of deflection is based on the amount of angulation each bellows can take and the length of the center spool. The engineers at Triad Bellows can increase or decrease the lateral deflection capability and cycle life by changing the center pipe length. As with all designs at Triad our universal metal bellows expansion joints are engineered and manufactured in strict accordance with EJMA 10th Edition. Standard universal metal expansion joints do not use tie rods and require the system piping to be properly anchored.

TIED UNIVERSAL EXPANSION JOINTS



Tied Universal Expansion Joints are constructed with two metal bellows of equal length separated by a center pipe just like a standard universal joint. With the addition of tie rods this metal bellows expansion joint does not require main anchors in the pipe run. The tie rods are designed to carry the full pressure thrust load and allow for lateral movement. Axial compression and extension is not allowed on tied universal expansion joints. If angular movement is required only (2) tie rods can be used.

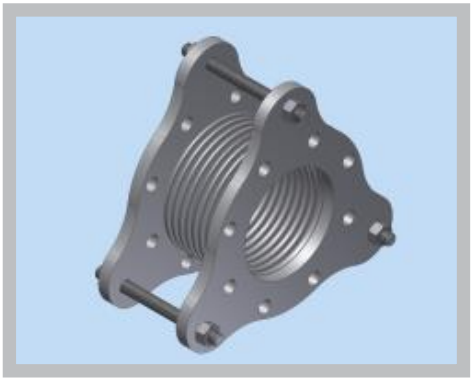
DUAL EXPANSION JOINTS



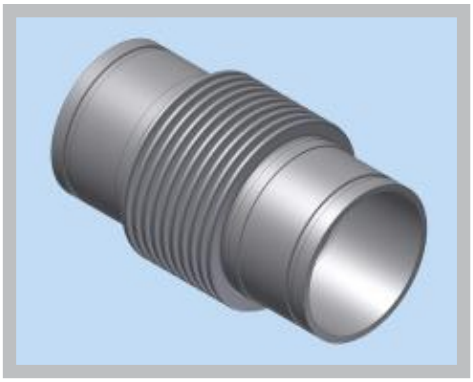
A **Dual Expansion Joint** can be used to gain larger axial movement than that of a single piping expansion joint can handle. Triad's dual metal expansion joints consist of two single bellows connected by center pipe. This expansion joint as with the single metal bellows expansion joints relies on the piping system to be anchored in order to function properly. An intermediate anchor base may be incorporated into the dual metal bellows design to withstand the forces required to move either bellows but still requires the use of main anchors.

PUMP CONNECTORS WITH TIE RODS

Tie Rod Bellows Pump Connectors are almost always constructed with multi-ply bellows that will stand up to the pump vibration. This style expansion joint is usually very short and has limited movement capability. Triad Bellows manufactures metal bellows pump connectors that are made with domestic materials and will meet “Buy America” and “Buy American” requirements.



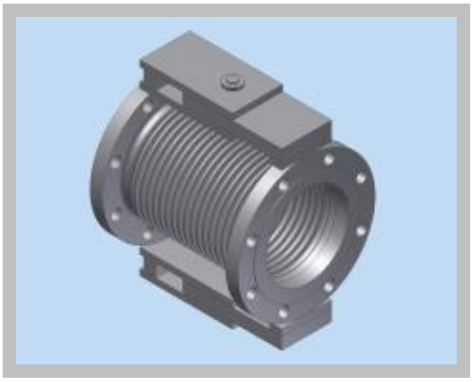
VICTAULIC GROOVE EXPANSION JOINTS



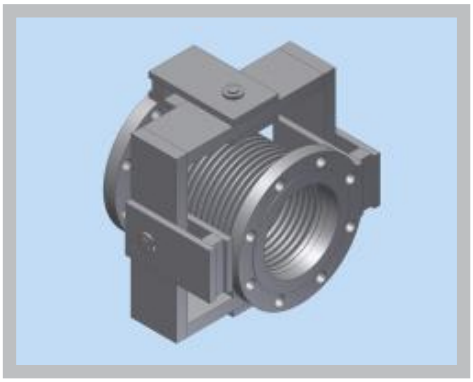
Stainless steel and carbon steel Victaulic grooved nipples can be incorporated into many metal bellows expansion joint designs. Triad Bellows offers bellows assemblies and Victaulic accessories such as Victaulic clamps. As with all expansion joint products proper anchoring and guiding is required.

HINGED EXPANSION JOINTS

Triad Bellows offers "**Hinged Expansion Joints**" in single, universal and slotted hinge designs. Our hinged metal bellows expansion joints are designed to allow angular rotation in a single plane only. For this reason hinged metal expansion joints must be used in sets of 2 or 3 to function properly. The hinges and pins are designed to restrain pressure thrust of the bellows and to accept loads transmitted by the piping design. Universal hinged expansion joint designs allow for large amounts of lateral offset while slotted hinge designs can provide for small amounts of axial movement.



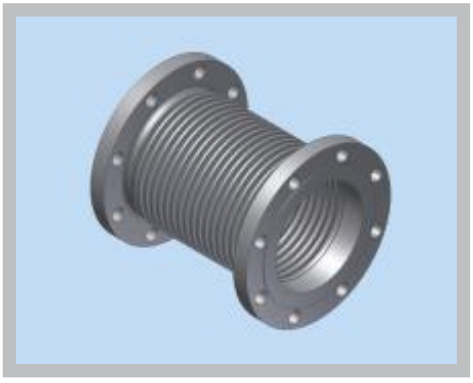
GIMBAL EXPANSION JOINTS



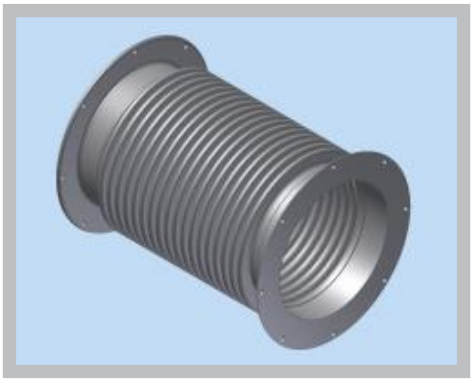
A **Gimbal Expansion Joint** is almost the same as the hinge type, except it can accept angular deflection in any plane. It contains two sets of hinge pins that are 90 degrees to the other. Each set of pins is attached to a gimbal ring in the center of the metal expansion joint. This type of metal bellows expansion joint eliminates axial force and pressure thrust as does the hinged type expansion joint. The two most common fitting combinations that Triad Bellows uses for gimbal expansion joints are flanges and beveled weld ends.

LARGE, LOW PRESSURE BLOWER AND FAN EXPANSION JOINTS

Large, low pressure **Blower and Fan Expansion Joints**, due to the bellows element geometry, provides soft, low spring rate flexible elements. This metal bellows expansion joint will absorb thermal growth and vibration in the ducting system with the minimal spring force reaction on the system equipment. By adding additional tooling Triad Bellows can manufacture metal expansion joints with stainless bellows up to 110" diameter.



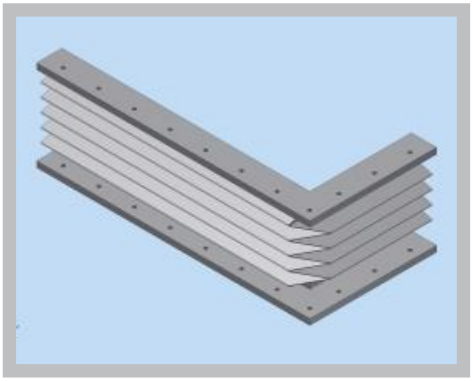
METAL DUCT EXPANSION JOINTS WITH ANGLE IRON FLANGES



Metal Duct Expansion Joints with angle iron flanges are made with single ply and multi-ply metal bellows and with carbon steel or stainless steel angle flanges. Industry standard bolt patterns as well as custom drillings are available. Metal bellows duct expansion joints can be designed for large amounts of thermal expansion in the ducting system. The engineers at Triad Bellows will design the metal bellows according to the strength of your duct.

RECTANGULAR METAL EXPANSION JOINTS

Triad specializes in **Rectangular Metal Expansion Joints** with the trusted camera corner design. Our designs are in accordance with EJMA standards and can be made in an unlimited combination of metal bellows, flange and flow liner materials. Universal Rectangular Metal Expansion Joints provide increased lateral and axial movement. As with circular metal expansion joints, metal rectangular joints take up three types of piping movement: axial, lateral and angular. In order to properly design rectangular bellows, it is critical to know in which direction the lateral and angular movements will occur in relation to the long and/or short side of the bellows. EJMA 10th Edition data sheets are provided for all rectangular metal bellows expansion joint quotations.



ACCESSORIES AND SERVICES

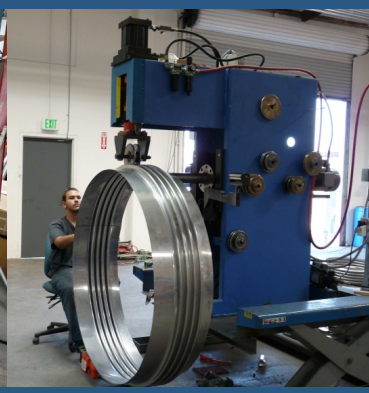
Flow liners, covers, tie rods, test ports, insulation, lifting lugs and more…

Hydrostatic testing, LPI inspection, x-ray, vacuum leak testing, private labeling and more…

SEND US YOUR INQUIRY

If your flexible piping product requirements are large or small Triad Bellows would like to be your go to manufacturer for metal bellows and expansion joints. We are a mid sized company with large company capabilities ready to serve you with quality products at competitive prices, on time deliveries and nice friendly people to work with.



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