

Triad Bellows provides everything you need to produce high quality expansion joints using your own fabrication resources. Inquire today to see how we can provide customized products suitable for your capabilities.



Overbooked? Don't forget - we have a team of experts ready to manufacture complete expansion joints if needed



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Expansion Joint Fabrication Guide

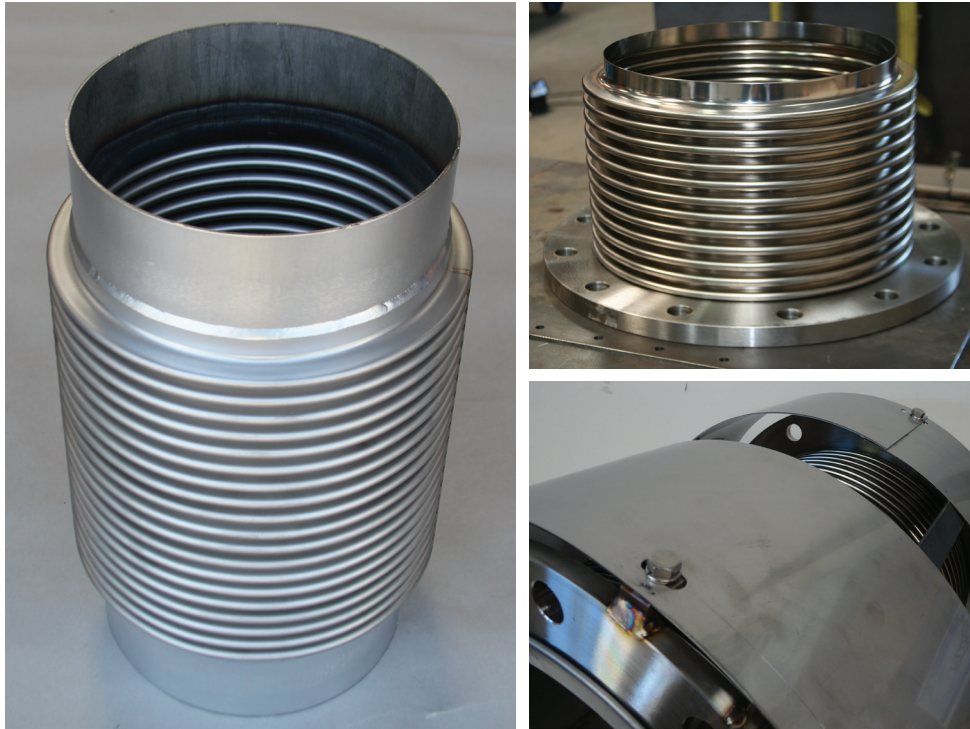


Triad  **Bellowss**
DESIGN + MANUFACTURING

This guide is your introduction into expansion joint manufacturing. A portion of our business has always been dedicated to supplying bellows capsules and components to companies with fabrication capabilities.

We understand that fabrication abilities and resources differ from shop to shop. Experience has provided us a number of different methods and procedures that make expansion joint assembly possible at all levels of familiarity. Many of these practices are used daily at Triad Bellows in our own manufacturing.

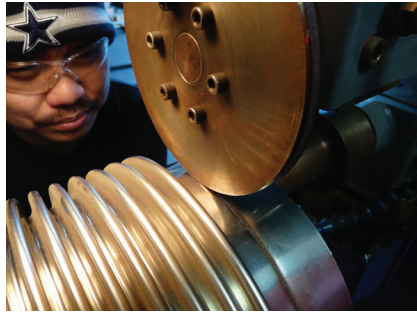
The following pages contain products and procedures designed to advance your company's expansion joint manufacturing capabilities. These products and procedures are proven to work and have been successfully implemented into many organization's daily business.



Products Customized to Fit Your Business:

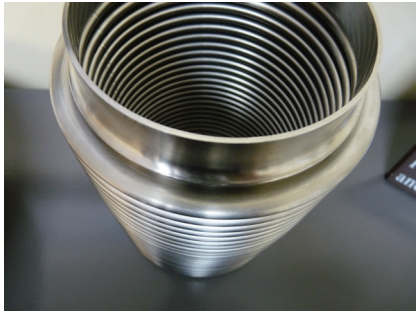
- *Standard bellows with expanded collars and weld bands*
- *Bellows with resistance welded collars (20 gauge – 14 gauge)*
- *Heavy tube ends (12 gauge+) pre-welded to bellows collars*
- *Fitted vanstones for floating flanges*
- *Integral vanstones with floating flange attached one end*
- *Flow liners expanded to fit your bellows design*
- *Tie rod kits with lugs and hardware to assemble restrained expansion joints*
- *Open-ended assemblies to create custom joints on demand*

Triad Bellows offers a wide range of custom bellows and accessories to assist in a variety of expansion joint fabrication projects.



Resistance Welded Bellows

Adding resistance welded bands will make welding to thin bellows collars easy.
RSW bands are available from 20 gauge to 14 gauge.



Heavy Wall Weld Ends

We pre-weld heavy cylinders to the bellows collars, to allow for quick connection to a number of fittings.
Heavy wall weld ends are available 12 ga or thicker.

Custom Machinery

Our custom built machinery was designed to create the best fit for expansion joint assembly.
Bellows and components can be expanded together to create a tight fit that can be easily welded.



Open-Ended Assemblies

We offer partially completed expansion joints for creating custom joints on demand.
Create your own stock line of joints that can be modified in minutes to solve any emergency.



Custom Components

Fitted components can be added to custom bellows to meet design requirements.

- Vanstones
- Flow Liners
- Tie-Rod Kits
- Cover Kits

Our machinery and procedures create an expert fit on components specially designed for your welding and fabrication practices.

Assembly and Welding Tips & Recommendations

Expansion joint fabrication can be tricky at times, but having the right tools and procedures can make all of the difference. We wanted to pass on some of our most useful tips, from years of experience and research in expansion joint manufacturing. The following procedures are designed to reduce fabrication time and produce a quality expansion joint.

Use Weld Bands

Use an interior weld band when fitting to flanges and an exterior weld band when pipe or tube is fit into the bellows neck. The weld band is not only an aid for welding but it also reinforces the bellows neck to prevent bulging when internal pressures exceed the allowable stresses. We can furnish bellows complete with proper weld bands expanded to the exact size you specify.



Get a Tight Fit

Make sure that the tube, pipe or flanges fit snugly onto the bellows neck. Never try to weld on the corrugation, this defeats the purpose of a bellows. Without the use of a hydraulic expander to size the bellows neck it is still possible to get a tight fit by machining the fittings to size.

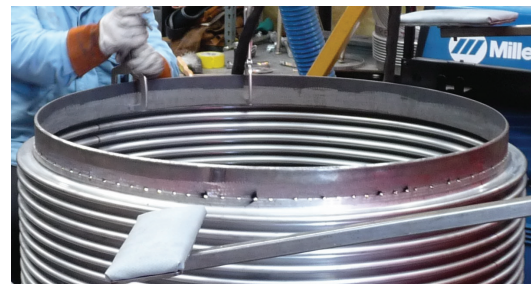


Clean Up

Bellows and all components and fittings need to be thoroughly cleaned prior to assembly. Contaminants like dirt, oil, and paint need to be removed with acetone prior to welding.

Tack Before Welding

It is important to tack weld the bellows neck to the desired fitting, prior to the attachment weld. Evenly space the tack welds approximately 1-1/2" apart around the entire circumference. Without tacks, the bellows neck can move and create gaps that will slow down the attachment weld process. In addition, gaps created by not tack welding can potentially leak, even after the gaps are filled.



Get Grounded

Make sure the expansion joint is properly grounded before starting the weld process. If the bellows arcs out it can burn a hole in the thin bellows material.

Argon Purge

Purging the bellows with argon is necessary when welding to thinner fittings where burn through is possible. It is usually not necessary to purge when welding to heavy fittings that fit tightly to the bellows neck. If your weld joint has gaps, purging the bellows will give you the best results.

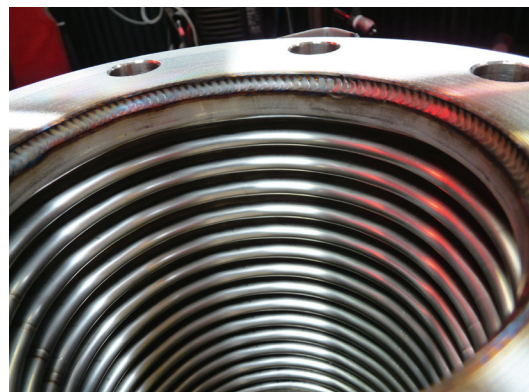
Heat Control

Welding a thin metal bellows to a thicker fitting requires good heat control. The use of a weld positioner with a variable speed foot control will give you the best results for both appearance and speed. Get comfortable and find your rhythm!

Tig Welding

Metal bellows should always be welded using the TIG method. Selecting the proper weld wire is important. Below are our weld rod recommendations for some of the most common weld joints.

Bellows Material	End Fitting	Weld Wire
T-321	C/S	T-309 or T-347
T-321	T-304L	T-309 or T-347
T-304L	C/S	T-309
T-304L	T-304L	T-308L
T-316L	C/S	T-309
T-316L	T316L	T-316L
Inco 625	T-304L	Inco 625
Inco 625	Inco 625	Inco 625



For material combinations not found above, visit the Rolled Alloys website link for additional advice on weld wire selection.

<http://www.rolledalloys.com/technical-resources/fabrication-information/welding/>

Don't forget... Triad Bellows is your best resource to assist with your in-house expansion joint fabrication. Call us anytime with your questions, we'd be glad to help!