

The Bellows Bottom Line

Practical advice on expansion joints

by Greg Perkins

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This month - **The Tied Universal Expansion Joint** *Liberator of anchored and guided piping systems*

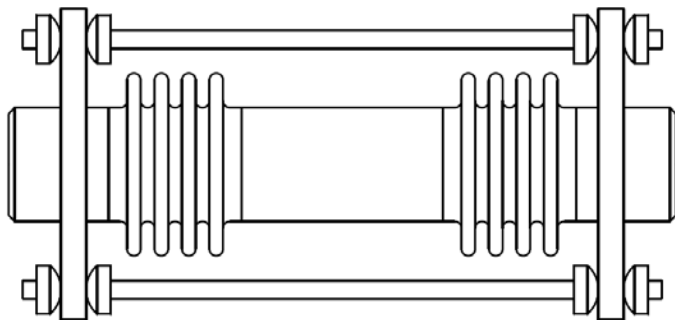
Stuck in a rut? Get out

I believe in the responsible use of expansion joints, BUT... anybody that automatically specifies an axial expansion joint in a smaller diameter piping system should be pummeled repeatedly with a 6" 300#RFWN flange.

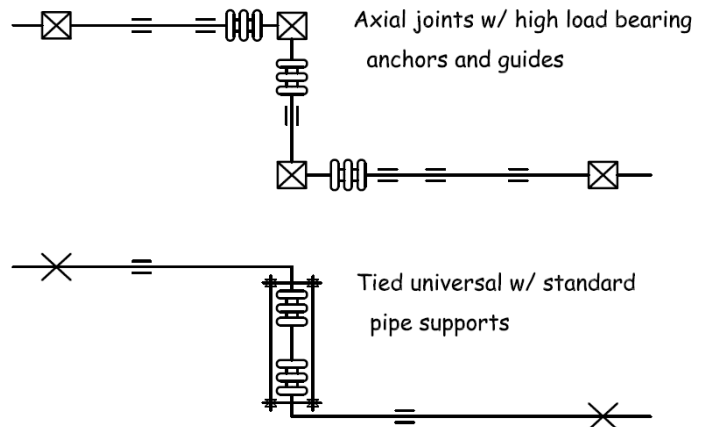
OK, that's a bit harsh as most piping systems with expansion joints fit that description. I, to, am guilty of such past transgressions but am now reformed. As recompense my mission is to liberate oppressed piping systems and throw off the shackles of anchors and guides. And what heroic device will achieve this, you ask? A handy and contractor friendly expansion joint called the tied universal.

Unload the system

Axial joints require load bearing anchors at every elbow because the bellows exerts a 'pressure thrust' force due to the system pressure. The piping requires sturdy guides in order to prevent column buckling. The size of these load bearing anchors and guides are often overlooked and under-estimated during the design of the piping.



A tied universal comes with rods that restrain the pressure thrust but allows the joint to move laterally. This is handy, really handy.



As a tied universal can only move laterally it is installed in the piping at a right angle to the long leg of the piping. The piping no longer feels a significant end load force. It is exactly the removal of that large force that ends the need for sturdy anchors and guides.

Counting the cost

Although an axial expansion joint itself is less expensive than a tied universal, when the anchoring and guiding costs are thrown in there is no contest. The tied universal has a much lower installed cost. In addition there are usually fewer expansion joints required.

A tied universal is also more mistake proof. Many a time has an installer of an axial expansion joint overlooked the special anchor and guiding requirements only to have his structures bend and break during start-up.

The pipe hardware required for a tied universal system can be similar to the support structure for piping without joints – with which all piping contractors are familiar.

Join me in my cause to rescue piping systems yearning to be free.

Next Month - How a expansion joint works Part3