

The Bellows Bottom Line

Practical advice on expansion joints

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APRIL 2012

This month - **The Ultimate Flue Gas Ducting Expansion Joint** *The best combination of reliability and cost*

Reliability AND cost savings

The most cost effective, longest-lasting flue gas metal rectangular expansion joint is a round corner, U-profile, integral flange design made with a heavy gauge of Cor-ten or carbon steel material.



Round corner, U profile, 1/8"thk CS expansion joint with integral flanges

Features not to be compromised

The two features that will ensure long life on a metal rectangular expansion joint are a U-profile convolution and a round radius corner.

The U-profile is much more flexible than a V-profile and reduces stresses in the corner. The round radius corner further reduces those stresses. These two features eliminate the most common field failures of metal rectangular expansion joints. See past issue #17 – <http://www.oakridgebellows.com/metal-expansion-joints/technical-articles/metal-rectangular-expansion-joints-that-last.html>

along with the video - <http://www.oakridgebellows.com/metal-expansion-joints/technical-videos/metal-rectangular-expansion-joints.html>

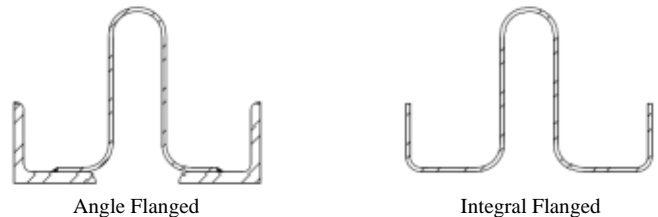


Single and double-mitered, and camera corner designs often tear at the welds

Substitutions that cut big costs

Consider using a thick ply (1/8") of carbon or Cor-ten steel instead of expensive stainless steel. These carbon steels are common bellows material in boiler systems supplied by companies such as Combustion Engineering, Riley Stoker, and Babcock & Wilcox. And those parts often lasted 30+ years. An added bonus of the thicker material is the ease of field weld repairs.

Another major cost saver is eliminating the typical angle flanges and using the 1/8" thick lip of the bellows. This lip can be seal welded to the adjacent ducting angle or channel in the field.



Many of the original angle flange connections end up being seal welded anyway instead of the designed bolted connections. It's rare for a bolted connection on a large duct to fit up; often in the field new holes need to be drilled, adding expense.

The Bottom Line

The ultimate flue duct metal rectangular expansion joint that is very reliable AND inexpensive has all of the above features – round corners, U-profile, integral flanges, made of thick carbon steel.

Next Issue - Expansion joint inspection criteria