

The Bellows Bottom Line

Practical advice on expansion joints

by Greg Perkins



This month - **Westinghouse Cross-Over Expansion Joint Alert** *Prevent Manage failure of the inner bellows ply*

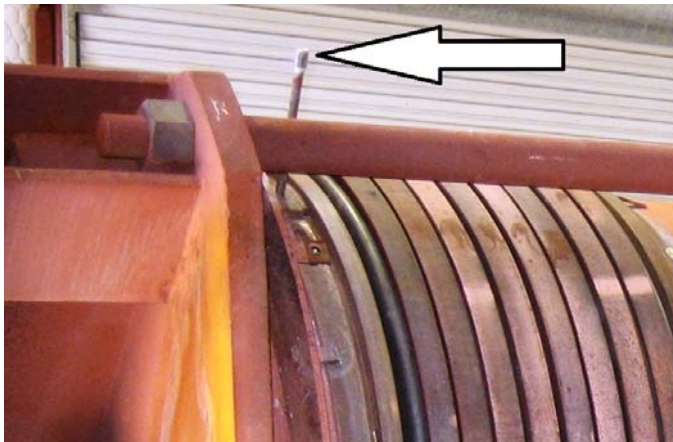
It has already failed; you just don't know it yet

Stop what you are doing right now and go check your Westinghouse steam turbine cross-over expansion joint 2-ply bellows test ports to make sure they are not capped. Go ahead; I'll wait.

What?! It does have a cap? Take it off right now. Wait. You probably already have a failure on the inner ply and steam will vent out; put it on your list of things to do during the next outage.



Imploded bellows inner ply with creases that will fail after a few cycles



Most of the ports are capped with no way to detect an inner ply failure

The cap doesn't let you see a problem

The cap hides a potentially failed bellows inner ply. In fact, it may have even *caused* the failure of the inner ply.

Any moisture that gets trapped between the plies, with no way to vent out, will flash into steam at turbine start-up and implode the inner ply. The outer ply rarely shows any distortion so failures go undetected for many years.

The two ply testable bellows is supposed to warn you of any inner ply failure so that you can rely on the outer ply and replace the cartridge at your leisure. That does not happen if the cap gets left on. And when an outer ply fails it is panic time. I have seen this happen all too often (I have a file full of imploded Westinghouse failure pics) so that is why this port needs to be leak tested routinely.

An easy solution

Take the cap off and replace it with something that allows venting but doesn't get plugged up with mud daubers and such.

After receiving an all-too-familiar distressed phone call last month, we decided to make a test port adapter and give them to anyone who asks. Yes, we are that generous. Plus you may think of us the next time you need a cross-over rebuild. Our top marketing people came up with that one.



Our port allows venting and will not plug up

The Bottom Line

Take the cap off and put on a bug-proof vent port. We made a bunch and will give you some. Just because.