



Pressure imbalance, “The gun & gauges don’t lie”

In this issue, I would like to take a look at pressure imbalance issues. Whether an E24 indication in Reactor Series or analog gauges reading high – low in other proportioner platforms. Too many times we get calls to our Technical Assistance line where the caller has applied a “shot gun” approach to their problem by cleaning every filter, cleaning the gun, replacing mix chambers, swapping guns and feed pumps, and still needing to bounce it past the group because they have not stumbled upon the real cause of the problem.

There are many causes for pressure imbalance and we need to focus our attention to the correct area to get us back up and running. I like to say there is no money in machine repair down time. So instead of a shotgun, I would like to propose a more focused approach.

A very good friend of mine, Craig Hier with Intech Equipment & Supply liked to call it “The Rookie Rag” approach. This is a great way to teach the concept. Meaning if we can determine what chemical “A” or “B” is coming out of the gun. Then we can place a rag over that side’s gauge and focus on the other side where the problem lies. This will immediately save us time by checking the side that is lacking chemical or is the cause to

our problem. That said lets explore some of the common causes for a pressure imbalance situation.

First we need to understand that the restriction of the mix chamber impingement port sizing creates the backpressure that we monitor at the fluid outlet gauges. Think of it as holding your thumb over the end of the garden hose. The more we block, or “restrict” the opening, the greater the backpressure we create. Most polyurethane foam chemistry requires 1:1 by volume ratio and pressures balanced within +/- 200 psi or so to give us the proper yield we are looking for. Consult with your chemical supplier for their recommendations on this. Remember we are looking for clues as to why we are lacking one chemical or the other at the gun outlet. If we have determined that the “A” (ISO) side is lacking at the gun then we need to check the gauge backpressure readings. If the “A” side is higher than the “B” side then this is an indication of restriction on the “A” side, anywhere from the gun mix chamber back to the fluid outlet manifold, we are holding our thumb over the “A” side outlet. These restrictions can include blockage in the, mix chamber, gun screen, whip hose, hose temperature sensor, or main fluid line. Other causes easily over looked is that the “A” side chemical is thicker than the “B” due to cold material or heater problems, or that the “B” side port has actually been increased by wear and in this case we are reducing the “B” side back pressure while causing a resin rich, or too much “B” condition.

If we stick with the lacking “A” example, however in this case the “A” side fluid gauge is lower than the “B”, then this is an indication of a problem from the fluid outlet gauge back to the drum feed supply. We are starving the supply with one of the following. Supply feed pump malfunction, restriction of the feed hose or filter strainer,

drum is not properly vented due to bung in place or desiccant breather clogged. Debris in the bottom of the drum container, or dented drum bottom restricting the feed pump inlet, or the “A” side proportioner pump has debris, or a stuck ball in the inlet or discharge ball check seat area. Again one problem area that is often overlooked is if we circulate our material back to the drum, is that the control valve could be leaking, or diverting pressure and material back to the drum.

So let’s save the shotgun for bird hunting, and time and money for our business by paying attention to what our gun and gauges are telling us.

If you have any topic matters that you would be interested in hearing about, then please send them in. And remember to visit our “PKE” Product Knowledge Exchange. You can find many answers to frequently asked questions there, or you can “Ask a Question” which will be answered by one of our product experts by the next business day. This is a great location to find information on all our products, whether in North America, or anywhere in the world with internet access. Please take time to visit us a www.graco.com. If you cannot find the answers you are looking for, then send us your questions.