Throttle Dampers

If your pneumatically-conveyed scrap system has multiple balers, how do you balance air flow and pressure to maximize system efficiency? Consider the use of throttle dampers in an active balanced system configuration.

Throttle dampers are used in trim and dust collection systems to balance the airflow and resulting pressure in a system with multiple balers. Air system vendors often try to manifold the balance blower to multiple cyclones or trim separators, hoping that the pressure will be evenly balanced. We call this an "H.I.W." (Hope It Works) system.

An active balanced system offers better results. This includes active throttle dampers combined with a PLC controller and multiple pressure transducers to sense system pressure on a real-time basis and adjust the flow in each baler separator/cyclone on a real time basis. It takes active controls to balance the pressure and account for variations in duct resistance, filter condition and separator conditions because each impacts the net pressure in the baler feed chute.

What happens when the pressure in each feed chute is not actively balanced? The pressure in a baler feed chute must be only slightly positive. If it's too positive, dust and trim will blow out of the feed chute creating a dusty baler room. Trim will also blow into the auto tie mechanism causing missed wire ties and inserter jams.

A balanced system will run better because it controls the blow out of trim and has no moving parts in the material stream (unlike Airlock or Un-Balanced) systems. If the pressure in the baler feed chute is negative, the trim will get sucked up onto the screen of the separator or cyclone causing plugging, loss of suction and down time. Without ACTIVE throttle dampers on a multiple baler/common filter system, the system will not be able to keep each baler at the necessary down pressure in the feed chute.

What's the solution? Airlocks on each baler are one fix, but airlocks are moving parts that can cause jam-ups in the material stream. Airlocks work, just not as well as an active balanced system.

As a bonus, throttle dampers also save energy. Think of a blower or fan as moving water. The less water it is allowed to move, the lower the amp draw on the motor and lower your power bill will be. The balance blower operated by VFD slows the blower to the optimal speed for a given set of supply blowers running. The throttle dampers set the flow (and resulting pressure) in each individual baler. Working together an active damper system with balance controls offers the best available technology to maximize up time AND dust control.

Looking at incorporating throttle dampers to balance airflow and system pressure? G.F. Puhl can help. Call us at 615.230.9500 or email us at sales@gfpuhl.com.