Maintenance Considerations For Condensate Removal From Compressed Air Systems

Lester V. Ottinger, President/CEO, Drain-All, Inc.

There is a critical, ongoing need to reduce maintenance costs, especially considering companies are being attacked by global competition and such savings go straight to the bottom line. One way to reduce costs is to conduct a survey of the condensate removal approach for your compressed air system. Not only will you find ways to reduce maintenance labor and parts costs, but you will also find considerable energy savings and ways to improve safety by eliminating slip/trip hazards. Three steps in a maintenance survey of your compressed air system's condensate removal approach will get those savings: 1: Document, 2: Analyze, and 3: Implement.

1. Document. Why is the Mona Lisa a painting and not hundreds of words in a book? Because a picture is worth a thousand words. With digital cameras photo documentation is easy and costs practically nothing. It provides solid documentation of observations in a survey of your compressed air system's current condensate removal applications. Putting the photos in an electronic document and adding comments creates a living document that you can add to as you work the project to a final archive showing the history of your project and accomplishments. The photos below speak volumes, explaining why changes need to be made.

The pipe at the left blows continuously via a cracked open ball valve to blow out condensate. What is the cost of the wasted compressed air used to blow a hole in the concrete floor? If this air was not wasted, it would make the compressor work less hard to meet demand and that would extend maintenance periods.

Check ends of condensate discharge pipes. Do they blow all the time simply “pumping up the pressure in the parking lot”? If they cycle, document the percentage of air to water blown out. It may surprise you how much air is being wasted.

Electrically operated timed devices and electric float traps require electricity and costly electrical drops. They have electrical cords that are often trip hazards. These get frayed from weather and things running over them and have to be replaced, resulting in maintenance costs. Totally pneumatically operated devices eliminate these problems.

Plugs can be accidentally pulled on electrically operated devices, stopping them from working and causing condensed water to back up in the system. This results in damage to compressors/dryers/filters, with attendant costs for unscheduled shut downs and repairs. Totally pneumatic devices eliminate this problem.

Electric timed devices are set manually. This should be a frequent task since

ambient temperature and humidity changes alter the amount of water that enters/leaves a compressed air system. Most timed devices are seldom manually adjusted after installed. Set for the worst case liquid flow, they blow open too often and for too long whether there is condensate or not—wasting valuable compressed air and raising energy costs. Any condensate removal device is usually positioned in very poor locations for a person to observe them, let alone adjust them. Try to find the timed device hidden under the metal flange to the right. No one is adjusting that one. Replacing timed devices with a pneumatic, on demand, float trap removes the need for manual adjustments—a maintenance labor and plant energy cost savings.

2. Analyze. Work with an expert (within your company or outside) to help analyze what you documented and prepare a detailed summary with an action plan to correct the problems. This must include financial justifications for needed expenditures.

Cost avoidance is seldom covered, but it should be. Not properly removing water from a receiver tank over years can rust the inside so badly it loses structural integrity and could explode, possibly causing loss of life. How much maintenance labor and equipment costs could be saved by avoiding such an event? How much could be invested in a small device to get the condensed water out effectively to prevent this from occurring?

Removing condensate the wrong way can be expensive in wasted energy. The receiver tank application to the right removes condensate via a partially cracked opened ball valve.

Ball Valve Size: 3/8”

% Open: 50%
Pressure: 110 PSI
Duration Left Open: 24 / 7
Cost of Electricity: $0.10/kW-hr

This cracked open ball valve is wasting $10,785.00 per year in energy that could be saved by installing an automatic, on demand, totally pneumatic float trap for only around $800—a great ROI.

3. Implement. Getting approval for and implementing corrective actions should be easier with a properly documented survey of the current condensate removal approach, including specific corrective actions, their related costs, and calculated ROI. Maintenance, if done right, can be a real profit center. A maintenance survey and correction program for condensate removal is a low cost, high ROI solution that directly adds to the company's bottom line.