

Motion
System

Hydraulics & Pneumatics

Battling the enemy

Counterbalance
valves fight hysteresis

Is pneumatic leakage patriotic?

In my last "Editor's Page" column, I wrote about how eliminating leakage is probably the biggest challenge facing the hydraulics industry. Now it's time to address the other side of fluid power — pneumatics.

As has been well documented in this magazine through the years, leakage in pneumatic systems usually is tolerated because it doesn't leave an oily mess. So what's the harm in letting a few leaks go unattended? The answer is simple: it wastes energy. The next question is, how much?

For an answer, I called Hank Van Ormer, president of Air Power USA, Pickerington, Ohio, and a frequent contributor to *Hydraulics & Pneumatics*. Air Power is an air auditing firm, which, in a nutshell, inspects manufacturing plants to evaluate their use of compressed air. The ultimate goal is to reduce the energy used for running the plant's compressed air system.

I was pleasantly surprised when Hank, himself, answered the phone. He travels a lot, so it was a rare treat to get to speak with him live.

Hank has found that 50% to 75% of a manufacturing plant's electricity — unless it makes cars or uses a lot of electric heaters or furnaces — goes to running its compressed air system. Furthermore, he explained that his audits

almost always reduce a client's electric load attributed to pneumatics by at least 30% — and 50% is not unusual.

Most people would be unimpressed by this figure because they have no idea how much they're spending to run the plant's air system. So, instead of telling clients that he can cut 30% to 50% of their energy consumption for compressed air, he does some simple math and tells them he can cut their monthly electric bill by 15% to 40%. That gets their attention.

Not all of these savings come from eliminating leaks, but much of it does. Hank explained that a ¼-in. diameter hole in a 100-psi air line would leak about 100 cubic feet of air per minute. Using some rule-of-thumb calculations, and an electricity cost of \$0.10 per kW hr, yields a cost of about \$2 per hour for this one leak. Even small plants probably have dozens of leaks this size, which would translate to hundreds or thousands of dollars wasted every day.

But the situation could be worse. The majority of electricity in the U. S. is produced by coal-fired power plants. So at least the majority of the raw materials to produce this wasted energy comes from the good old U. S. of A. I don't think this would be any consolation to executives who find out how much money ends up blowing in the wind.



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