



Safety

Efficient Air Leak Detection: How to Manage Leaks Effectively in Your Facility

Roland Jones | Apr 08, 2021

Air leaks are an inevitable part of any manufacturer's compressed air system. Whether a leak is big or small, it's bound to be a drain on your productivity and profits. Here's how to detect and manage air leaks in your facility.

Compressed air systems are a common feature of most manufacturing industries.

They are found in almost every industrial plant, from small machine shops to larger manufacturing facilities, and they are often vital to the plant's operation.

Used to operate many mechanical devices, these systems can vary in size, ranging from a small unit of 5 horsepower to much larger systems with more than 50,000 horsepower.

Leaks in a compressed air system are a common occurrence and, if not handled correctly, can be a significant source of energy loss for a facility, *sometimes wasting 20 to 30 percent of a compressor's output*.

The advantages of using technology for air leak detection include versatility, ease of use and the ability to quickly find a wide variety of leaks.

However, facilities that engage in proactive air leak testing and repair can reduce leaks to an acceptable level of less than 5 to 10 percent of total compressed air production capacity, the Department of Energy notes.

Air leaks contribute to other operating losses for a manufacturing company, such as:

- A drop in system pressure, which can make air tools function less efficiently, adversely affecting production levels.
- Extended running time for equipment and work orders, which can lead to additional maintenance requirements and increased unplanned downtime.

Read more: How to Deliver Manufacturing Productivity Through New Equipment and Technology

Managing air leaks is an important energy-saving measure that can help businesses keep ahead of competitors as the economy emerges from the COVID-19 pandemic.

Cost-saving techniques include using technology to detect leaks and putting in place processes that minimize the possibility of future leaks. Both approaches require technicians who are trained and have good practical experience.

Detecting and Fixing Air Leaks

Traditional leak detection practices are quite primitive. They include listening or feeling for a leak, or using soapy water applied to areas where a leak is suspected and looking for soap bubbles to form.

Given that it's almost impossible to see an air leak with the naked eye, a more effective modern method is to use an ultrasonic acoustic detector device such as ***the Fluke ii900 and ii910 Sonic Industrial Imagers***. These portable devices can identify the high-frequency hissing sounds associated with air leaks, allowing maintenance teams to quickly and accurately locate leaks in compressed air systems.

FOCUS ON AIR LEAKS

THE OPPORTUNITY

Prevent unnoticed air, gas or vacuum leaks before they reduce productivity and efficiency, or lead to substantial damage such as equipment failure and contamination.



THE SOLUTION

Specifically designed for noisy production facilities, the Fluke ii900 Industrial Acoustic Imager enables maintenance teams to efficiently and accurately locate leaks in compressed air systems.

THE EFFICIENCIES

Reduce detection time

Save on utilities and equipment costs

Improve production with existing equipment

Extend tool life



FOCUS ON EFFICIENCY

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The advantages of using technology for air leak detection include versatility, ease of use and the ability to quickly find a wide variety of leaks. These devices are easy to use and require only a small amount of training.

Air leaks can come from any part of the compressed air system, but the most common problem areas are:

- Couplings, hoses, tubes and fittings
- Pressure regulators
- Open condensate traps and shut-off valves
- Pipe joints, disconnects and thread sealants

Experienced maintenance workers likely know where leaks occur most often: at end-use joints and connections, for example. Stopping these leaks can be as straightforward as tightening a connection or checking parts such as couplings, pipe sections, joints or traps. Threads may have been poorly maintained or have insufficient sealant applied. Nonoperating equipment can also lead to unforeseen leaks and should be isolated.

More complicated problems may require replacing faulty equipment.

And beyond simply detecting leaks, it's important for maintenance workers to first do plant walk-arounds to establish accessibility to equipment used to ensure detection work can run efficiently and effectively.

*Read more: **Principles of Lean Process Improvement: Minimize Movement***

Creating a Leak Prevention Program

A leak prevention program is a crucial part of an overall program aimed at improving the performance of compressed air systems.

The DOE identifies two basic types of leak repair programs:

- **Seek and repair:** a process of simply finding a leak and repairing it immediately.
- **Leak tag:** the process of identifying a leak with a tag and logging for repair at a later time. This is often a two-part tag; one part stays on the leak and the other part is turned over to the maintenance department, identifying the location, size and description of the leak to be repaired.

Your approach will depend on the type, size, culture and work practices of your facility, the DOE adds, noting that the best solution for most facilities will likely be a combination of the two approaches.

Other important elements of a successful leak program may include:

- Measuring a **baseline for compressed air usage** to establish the effectiveness of your leak repair program.
- Understanding the **cost of compressed air leaks** to show the number of resources that should be allocated to your program and the potential savings.
- Documenting the **location, type, size and estimated cost** of your leaks to track your program's progress and identify persistent problem areas. Perform **periodic reviews** to maintain system efficiency.
- Documenting your **repairs** to show the effectiveness of the program and strengthen support for it. Fixing the biggest leaks first will show the biggest savings.

Compressed air leaks are one of the primary causes of wasted energy in industrial facilities. Performing routine maintenance checks and developing a leak detection program can help you optimize your

compressed air system and make it run more efficiently, saving you money.

Read more: [Lean Manufacturing: The Advantages of Adopting Agile Operations](#)

What steps are you taking to minimize leaks in your compressed air system? Share your thoughts and insights in the comments below.

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