

Compressed air leaks cost you precious money

Even well-maintained compressed air systems are not free of leaks. They must be inspected every year and the leaks must be rectified – but at the latest when the compressor leaps into action for no reason during the night even though the plant is inactive.

Action

Inspect the compressed air pipe system for leaks every year. Mark the leaks and seal as many of them as possible.

Requirement

You have a compressed air system that operates for at least 4 hours every day.

In a poorly maintained compressed air network, an average of 40 percent of the air is lost through leaks.

What to do

1. Track down the leaks

- Use the leak detector to systematically check pipes, connections and plants. You will find most leaks in the last few metres near the end consumers.
- Note down the leaks you find on a leak record (there is a model in the “4-step check to optimise a compressed air system” – see the additional information).

2. Repair the leaks

Rectify the leaks you have identified:

- If possible, seal the leaks immediately – for example, by tightening up screwed connections.
- Use a coloured label to identify leaks that cannot be rectified immediately. Note the location of the leak and the materials needed to rectify it.

- Order the materials needed to rectify the leak.
- Once the materials have been delivered, seal the leaks.

3. Repeat annually

The compressed air system must be checked for leaks at yearly intervals – because it’s inevitable that new leaks will occur all the time.

Costs – effort

- Your own labour (detecting and sealing leaks):
 - 1 working day per year for small systems
 - 3 to 5 working days per year for larger systems
- Foam leak detector: approx. CHF 20 per can
- Leak detector: purchase prices start at CHF 1000
- Leak detector, weekly rental price: approx. CHF 150

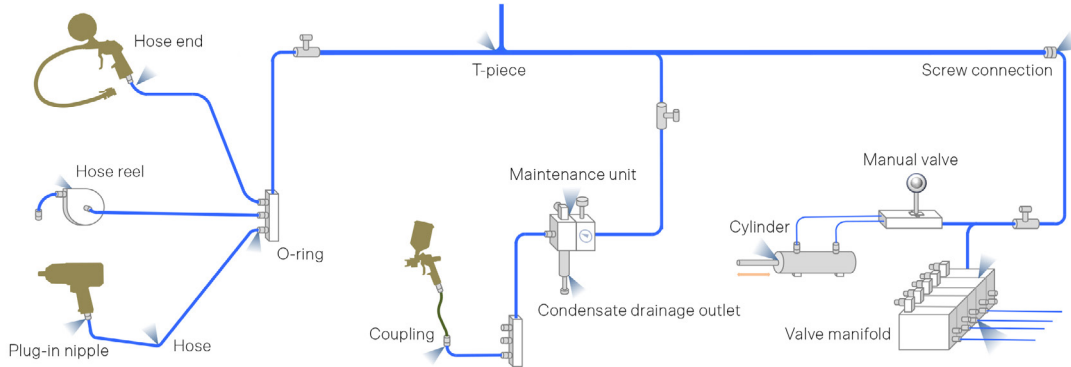
Please note!

- Compressed air is a form of energy that can be used universally – but it is also a very expensive form of energy.
- It is difficult to quantify the size of leaks because the volume of the noise created by escaping air (leakage noise) does not indicate how much air is being lost.
- It is hardly worth sealing leaks that are only active for a few minutes each day. Examples of these include faulty seals on a door opening cylinder when the door is open if the door is only open for 15 minutes per day.

Additional explanations

Typical weak points

Most leaks are found near the end consumers. It is particularly worthwhile to examine these areas:



100 percent airtight is not always possible

It is only possible to eliminate all leaks in a very small minority of cases. There are often leakage points that would take too much time and effort to seal. So: focus on those leaks that can be sealed easily and quickly.

How to rectify leaks

- Tighten loose screwed connections and replace old screwed connections that are not airtight
- Fit O-rings correctly and replace damaged O-rings
- Replace leaky couplings and plug-in nipples
- Tighten or replace hose clips
- Shorten or replace brittle hoses that are not airtight
- Have non-airtight valves and cylinders repaired or replaced by a specialist
- If components such as maintenance units have leaks, replace the seals or replace the entire unit

Hemp-sealed connections

Pipe systems with hemp-sealed pipe connections have an exceptionally high risk of leaks. The hemp paste dries out over time so the pipe connections are no longer airtight. Leaking screwed connections can often be sealed with Teflon tape. Check whether it would pay off to gradually replace the hemp-sealed pipe system with a modern, gap-free distribution system.

How to locate leaks

Use your ears: If all consumers are switched off, you will already be able to hear many leaks with your own ears. This method does not work in facilities with noise emissions that operate on a 24/7 basis – and it is also unsuitable for leaks outside of the audible range.

With foam leak detector: A simple method for small systems with few end consumers. The foam leak detector also allows detection of the exact location of leaks that could not be tracked down accurately with other methods (e.g. on valve manifolds).

With an ultrasonic measuring instrument: This method allows leaks to be located while production continues to operate, even in production halls with very high noise emissions. Models with a horn are better at focusing the sound waves, and they can locate leaks more accurately. A headset also makes it possible to hear the leaks. In addition, there are models that quantify the leakage rate in litres/minute and can even calculate the annual savings potential in francs.

Additional information

- [Guideline on optimising compressed air: actions and tips](#)
- [4-step check to optimise a compressed air system](#)
- [Efficient compressed air platform](#)