



Compressed air leakage costs, potential savings and detection

In the EU, 80 TWh of electricity is consumed annually for compressed air production¹. Of this, 15 %, i.e. 12 TWh, are lost due to leaks in the compressed air systems². 80 % or 9.6 TWh of these losses are avoidable² if the leaks are detected and fixed.

The extent of losses due to compressed air leakage

Comparing the amount of energy losses of 12 TWh with the energy producers or consumers, it becomes clear that 12 TWh are:

- more than the largest German nuclear power plant can produce in one.
- exactly the amount of electricity required by Deutsche Bahn to operate its trains for a year.
- twice the amount of CO₂ emissions (474 g CO₂/kWh = 5.7 million tons CO₂) of the Bergkamen coal-fired power plant.



The costs for the losses of 12 TWh due to compressed air leakages amount to 1.080 million € at an electricity price of 0,09 €/kWh. Since 80 % of this is avoidable, 864 million € could be saved in the EU by repairing compressed air leakages.

What can your company save on energy costs?

The calculation of the life cycle costs (LCC) shows that the energy costs are usually more than 75 %¹. For this reason, many companies carry out regular audits and inspections of their machines and equipment. By successfully locating and eliminating leaks, an average of 12 % of energy costs can be saved. In addition, the operational safety is increased and by reducing the compressor running times, the maintenance intervals and the service life of the plant are extended.

Costs of a compressed air system over the life cycle (LCC)

Assumptions: 110kW, life cycle 15 years, working hours 4000h/a, energy costs 9ct/kWh		
Investment costs	16%	121.846 €
Maintenance costs	6%	45.692 €
Energy costs	78%	594.000 €
Total costs	100%	761.538 €

¹ Fraunhofer ISI; Dr.-Ing. Peter Radgen: Compressed Air Systems in the European Union, 2001.

² Dr.-Ing. Peter Radgen, Manuel Unger; Theoretical and experimental evaluation of compressed air leakages, Universität Stuttgart, 2019.



Time-consuming scanning with outdated measurement technology

Currently, the localization is still very time-consuming due to the ultrasonic measuring devices available on the market. The air-bearing components (plug couplings, hoses, fittings, defective tools, etc.) must be scanned. With large production lines, this work can take several days or weeks. Again, other measuring equipment cannot be used during operation.

The camera analyzes the environment over a large area and marks leaks in the live image

With the SoundCam 2.0 a fast and effective detection of leaks is carried out. It is the only acoustic camera that is dust and splash-proof (IP54). It operates in a frequency range up to more than 70 kHz. It has 64 microphones and offers strong light for dark environments due to its 4 LEDs. In about 30 seconds the SoundCam 2.0 is ready for operation and immediately captures the data and saves the results as image and video for later documentation.

Added value in compressed air leak detection with the SoundCam 2.0

- ✓ The leaks are shown in real time in color on the display
- ✓ Analysis from near to far (from 0.2 m to over 10 m)
- ✓ Can be used in running production by suppressing background noise
- ✓ At least 80% time saving compared to standard detection systems
- ✓ Wide frequency range up to more than 70.000 Hz
- ✓ World's only splash-proof hand-held camera (IP54)
- ✓ Integrated LED lighting
- ✓ Ready for operation in approx. 30 s for all applications
- ✓ Extremely fast and easy localization of noises / leaks
- ✓ Immediately available measurement data
- ✓ Free Windows Software

Profitability of the investment of a SoundCam 2.0 over a life cycle

Economic analysis of life cycle costs (LCC) based on the previous example		
Savings	12%	71.280 €
additional investment costs	5%	-6.092 €
additional maintenance costs	10%	-4.569 €
Investement SoundCam 2.0		-7.999 €
Profit		52.619 €



Leakage at the connection hose to a compressed air pistol

More applications of the SoundCam

- ✓ Determination of disturbing noise at the workplace
- ✓ Preventive maintenance
- ✓ Noise Analysis
- ✓ Process monitoring
- ✓ Acoustic product development
- ✓ Leak measurement
- ✓ Detection of cracking, rattling...
- ✓ Inlet location of false air
- ✓ and much more.



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