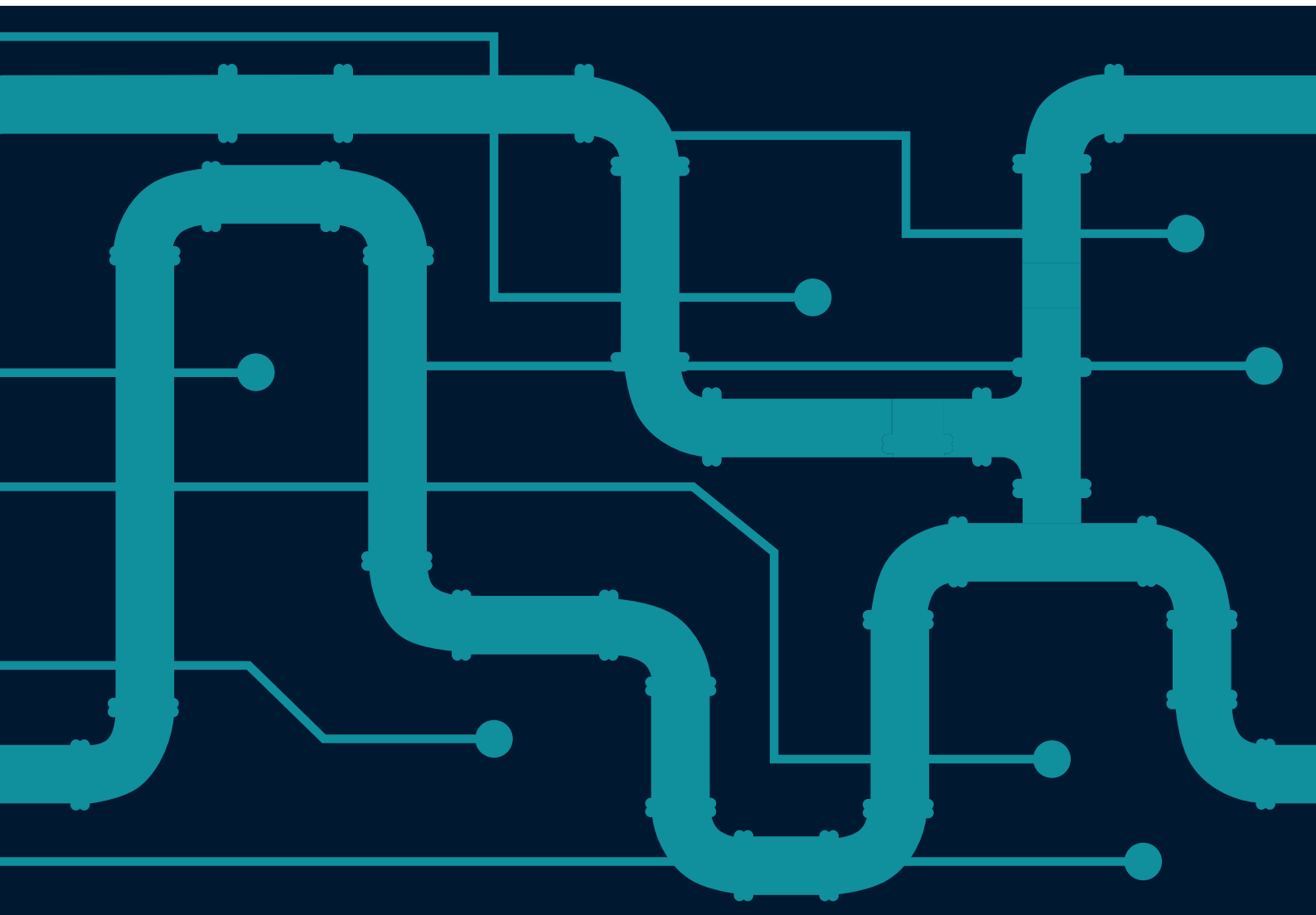


Reduce your carbon footprint. Reduce compressed air leakage.

The cheapest and fastest way to reduce the carbon footprint of your industrial compressed air system is to reduce leakage.



The Enersize mission is to become the global leader in compressed air efficiency software.



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A significant opportunity

Industrial compressed air systems at a new frontier

An extraordinary convergence of digital transformation and modern technologies like SaaS, Internet of Things (IoT), AI and Machine Learning has created a unique [opportunity](#) for organizations to take a substantial leap forward to address the energy savings opportunity in their industrial compressed air systems.

The broad use of sensors and wireless technology has simplified the information flow, which highlights the true cost of compressed air and identifies opportunities to improve efficiency and productivity. A properly managed compressed air system can save energy, decrease downtime, increase production throughput, and improve product quality. Because energy is the largest controllable operating expense for organizations using industrial compressed air systems, reducing energy costs has a significant positive impact on the bottom line.

The UN is calling for a decade of action to deliver the Sustainable Development Goals by 2030. Corporate Social Responsibility reports from manufacturing and non-manufacturing

companies are under scrutiny. Certifications like ISO 50001 and ISO 11011 are available for organizations to document that they monitor energy efficiency and address savings potentials in all areas of operation. Audits for compliance are putting pressure on organizations to act.

Leakage management in industrial compressed air systems has been on the agenda since the 1970's. Over the years, many talented individuals, work groups and businesses have developed systems and tools to simplify leakage detection and repair projects. But with the technologies available today, we are at a new [frontier](#). Now is the perfect time to act.

At Enersize, our SaaS platform for compressed air optimization is designed to allow maximum flexibility so that people can manage industrial compressed air systems the way that is best for them. We give people the flexibility and freedom to maintain efficiency and productivity. Read on to discover the reasons why and how your organization can embrace – and benefit from – the [digital transformation](#).

Because energy is the largest controllable operating expense for organizations using industrial compressed air systems, reducing energy costs has a significant positive impact on the bottom line.

So, is it time for you to change?



CO₂

Leakage management will reduce your carbon footprint.

>25-30%

Compressed air systems often have leakage levels way above 25-30%. ¹

<5-10%

Leakage should be less than 10% in a well-maintained system. ²

ROI

Return on investment (ROI) for retrofits is often less than 1 year. ³

^{1,2)} https://www.compressedairchallenge.org/data/sites/1/media/library/sourcebook/Improving_Compressed_Air-Sourcebook.pdf.

³⁾ Adolph Gus Lopez, "Psst. Is that our Air System Operating Again? North American Industrial Air Compressors Market Assessment," August 1995.

**Let's look at the global trends affecting
compressed air systems ►►**

An industry in transition

Industry megatrends

1. Increasing focus on sustainability UN Sustainable Development Goals

Globally, there is a focus on embracing sustainability like never before. With just 10 years to go, an ambitious global effort is underway to deliver the 2030 promise of the UN Sustainable Development Goals. According to the UN, progress is being made in many places but, overall, action to meet the Goals is not yet advancing at the speed or scale required. Organizations are expected to initiate ambitious actions to deliver the Goals by 2030. This decade of action calls for accelerating sustainable solutions to all the world's biggest challenges.

2. Automation is everywhere

More and more web-enabled devices are gathering data as part of the Internet of Things (IoT). Production becomes smart, intelligent and autonomous. Production lines will make their own decisions and human intervention will only be needed when things go wrong.

Automation is becoming faster, more capable and ever-present, while Artificial intelligence (AI) is already driving the design of revolutionary software experiences. AI and Machine Learning (ML) are the keys to automation and digital transformation. We will see ever more cloud applications feature AI and ML capabilities, while an awe-inspiring amount of data is managed autonomously.

A decade of action ahead for the Sustainable Development Goals.



3. Increasing demand for certification Certification for ISO 50001

ISO 50001 is the standard for helping organizations manage their energy performance. It is based on the management system model of continual improvement. This makes it easier for organizations to integrate energy management into their overall efforts to improve quality and environmental management.

ISO 50001 provides a framework of requirements for organizations to:

- Develop a policy for more efficient use of energy
- Fix targets and objectives to meet the policy
- Use data to better understand and make decisions about energy use
- Measure the results
- Review how well the policy works
- Continually improve energy management

Certification for ISO 11011:2013

ISO 11011:2013 is the standard for requirements for conducting and reporting the results of a compressed air system assessment that considers the entire system, from energy inputs to the work performed as the result of these inputs.

ISO 11011:2013 sets requirements for analysing the data from the assessment, reporting and documentation of assessment findings, and identification of an estimate of energy savings resulting from the assessment process. And it identifies the roles and responsibilities of those involved in the assessment activity.

The standard is currently under review and will be replaced by ISO 11011-1.

Let's look at how to capitalize on the savings potential in compressed air systems ►►

Capitalize on the savings potential

The cost of doing nothing is high

Reduce energy consumption

Because energy is the largest controllable operating expense for organizations using compressed air for industry, reducing energy consumption has a significant positive impact on the bottom line.

Energy costs are by far the largest expense of owning and operating compressed air systems. If compressed air was free there would be no incentive to implement a leakage management project. However, as most companies are aware, compressed air is a very expensive "fourth" utility.

Read on to discover the cost of doing nothing.

Reduce leakage

Leakage repair represents the fastest return on investment (ROI) in compressed air system projects. According to industry data, the typical ROI for compressed air system retrofits is 1-2 years. However, the 9,000 leakage management projects that we have completed at Enersize demonstrate that ROI can be as low as 3-9 months.

Leakage repair is also the fastest way to reduce energy consumption and thereby your company's carbon footprint.

Improve the performance of your compressed air system

The U.S. Department of Energy has calculated that compressed air systems can have losses as high as 25 to 30 percent of air capacity and power. The percentage lost to leakage should be less than 5 to 10 percent in a well-maintained system. Optimal maintenance intervals are essential to compressed air system efficiency and productivity and are a means of avoiding or delaying major investments in compressors.

Improving and maintaining compressed air systems requires addressing both the supply and demand sides of the system and how the two interact in terms of flow and power.

The **supply side** includes the conversion of primary energy resource to compressed air energy as well as compressors and air treatment. A properly managed supply side will ensure that the compressed air system is configured correctly to deliver the air quality, quantity and level of pressure required by the end uses in your plant, in a dependable, cost-effective manner.

The **demand side** includes distribution and end-use equipment. A properly managed demand side minimises wasted air and uses compressed air for appropriate applications.



Compressed air systems can have losses as high as 25 to 30% of air capacity and power.

Let's look at the savings
opportunity in detail ▶▶

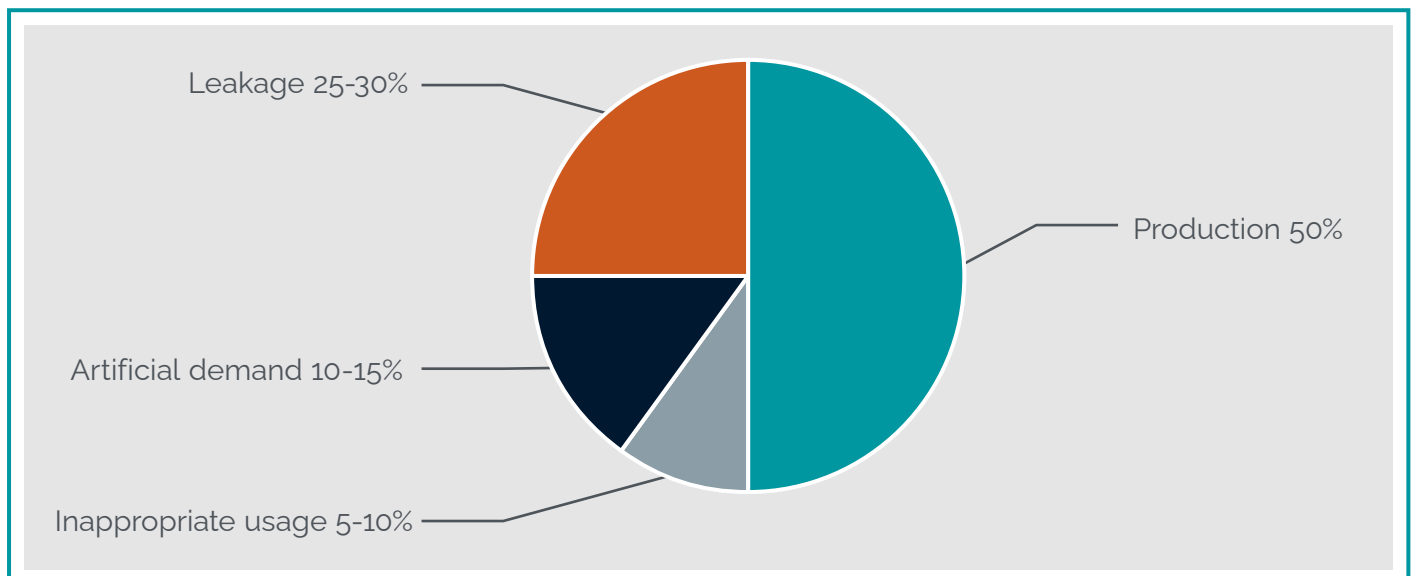
The cost of doing nothing?

A detailed look at the savings potential for leakage repair in compressed air systems

Leaks can be a significant source of wasted energy in an industrial compressed air system, sometimes wasting 25 to 30 percent of a compressor's output, according to the U.S. Department of Energy. A typical plant that has not been well maintained

will likely have a leak rate equal to 20 percent of total compressed air production capacity. On the other hand, proactive leak detection and repair can reduce leaks to less than 5 to 10 percent of compressor output.

How much compressed air is lost to leakage?



Leakage repair represents the fastest return of investment (ROI) in compressed air systems.

How much money is lost, if you delay repairs?

Example from The U.S. Department of Energy (translated into European standards).

A chemical plant undertook a leakage prevention program following a compressed air audit at their facility. Leaks, approximately equivalent to different orifice sizes, were found as follows:

- 100 leaks of around 0.8 mm at 6.2 bars
- 50 leaks of around 1.6 mm at 6.2 bars
- 10 leaks of around 6.4 mm at 6.9 bars

Calculate the annual cost savings if these leaks were eliminated. Assume 8,000 annual operating hours, an aggregate electric rate in EU of EUR 0.1173/kWh¹, and compressed air generation requirement of approximately 0.11 kWh/m³.

Cost savings = # of leaks x leakage rate (m³/h) x C² (coefficient of flow) x energy consumption (kW/m³) x # of hours x energy cost (\$/kWh).

Using values of the leakage rates from the above table and assuming sharp-edged orifices:

- Cost savings from 0.8 mm leaks =
100 x 2.55 x 0.61 x 0.11 x 8000 x 0.1173 = €16,056
- Cost savings from 1.6 mm leaks =
50 x 10.02 x 0.61 x 0.11 x 8000 x 0.1173 = €31,546
- Cost savings from 6.4 mm leaks =
10 x 176.7 x 0.61 x 0.11 x 8000 x 0.1173 = €111,262

Total cost savings from eliminating these leaks =

€158,865

Note that the savings from the elimination of just 10 leaks of 6.4 mm account for almost 70% of the overall savings. As leaks are identified, it is important to prioritize them and fix the largest ones first. Calculations exclude any service or investment related costs.

Source: https://www.energystar.gov/sites/default/files/buildings/tools/compressed_air3.pdf

¹⁾ https://ec.europa.eu/eurostat/statistics-explained/index.php/Electricity_price_statistics#Electricity_prices_for_non-household_consumers

²⁾ C = coefficient of flow factor <https://core.ac.uk/download/pdf/232828961.pdf>

Winning through

Overcoming the barriers to efficiency improvements

Audit compressed air needs

Compressed air needs are defined by the air quality, quantity, and level of pressure required by the end uses in your plant. Analysing needs carefully will ensure that a compressed air system is configured properly so that a clean, dry and stable supply of compressed air can be delivered at minimal cost.

An audit and analysis of your system will provide you with all the information you need for your facility.

Detect leaks

The best way to detect leaks is to use an ultrasonic acoustic detector, which can recognize high frequency hissing sounds associated with air leaks.

A leakage survey will help you find, grade and document leaks.

Repair leaks

Leaks are a significant source of wasted energy in a compressed air system, often wasting as much as 25-30% of the compressor's output.

Compressed air leaks can also contribute to problems with system operations, including: fluctuating system pressure, excess compressor capacity, or decreased service life and increased maintenance of supply equipment.

A repair project will help you avoid losing money on wasted energy.

Monitor and maintain

Fixing leaks once is not enough. Incorporate a leak prevention program into your facility's operations. It should include identification and tagging, tracking, repair, verification, and employee involvement. Set a reasonable target for cost effective leak reduction—5-10% of total system flow is typical for industrial facilities.

A continuous monitoring and maintenance program will help you track the essential key performance indicators (KPIs) for your compressed air system.

Let's look at the Enersize response to the needs of the industry ►►



The Enersize game-changing platform

Reduce compressed air leakage. Reduce your carbon footprint.

An extraordinary convergence of digital transformation and modern technologies like SaaS, Internet of Things (IoT), AI and Machine Learning has created a unique opportunity for organizations to take a substantial leap forward to address the energy savings opportunity in their industrial compressed air systems.

We view our capabilities in terms of how they help our customers

Our SaaS platform for compressed air optimization is designed to allow maximum flexibility so that people can audit, survey, repair, and monitor industrial compressed air systems the way that is best for them. They can change and configure services by connecting and creating zones across the facility or consolidating data from multiple sites across the enterprise.

Audit

Our audit & analysis software suite supports the way your organization audits both its energy consumption levels and the costs of the compressed air system.

Survey and repair

Throughout your leakage detection survey, our leakage management software suite supports people in their work to grade and document leaks.

And when you initiate repairs to those leaks, we support their prioritization and project management.

Monitor

Continuous surveillance of your compressed air system with our monitor software suite helps people define optimal maintenance intervals, monitor flows and keep leakages at an acceptable level < 10%. We support people in creating [zones](#) across the facility as well as to consolidate data from [multiple sites](#) across the enterprise.

At Enersize, we give people the flexibility and freedom to maintain efficiency and productivity of their industrial compressed air system, with a proven objective of reducing energy consumption and their organization's carbon footprint.



Compressed Air Services

The Energize Software-as-a-Service suite for energy optimization of industrial compressed air.

Q+LEAQS

Software support for leakage detection and repair management

Q+MONI

Software support for continuous monitoring

Q+ZONE

Software support for zone-based monitoring

Q+ENTERPRISE

Software support for enterprise-wide visualisation and real-time optimization

Q+AUDIT – Software support for a compressed air audit and system analysis

Q+FOUNDATION – Our SaaS platform for energy optimization of industrial compressed air



Enersize delivers smart software, tools and services for energy optimization of industrial compressed air. Resulting from the merger of three Nordic companies, Enersize customers benefit from the heritage and experience of over 7000 projects. Our expertise and the commitment of our people has made us a recognized global leader in compressed air efficiency software. The company is listed on Nasdaq Stockholm First North Growth Market under the ticker: ENERS

For more information visit enersize.com

