



SHAPE

ENERGY

**Reducing Your Energy Consumption
from Compressed Air Usage**



shapeenergy.co.nz



sales@shape.co.nz



0800 468 567

A Whole System Approach to Saving Energy

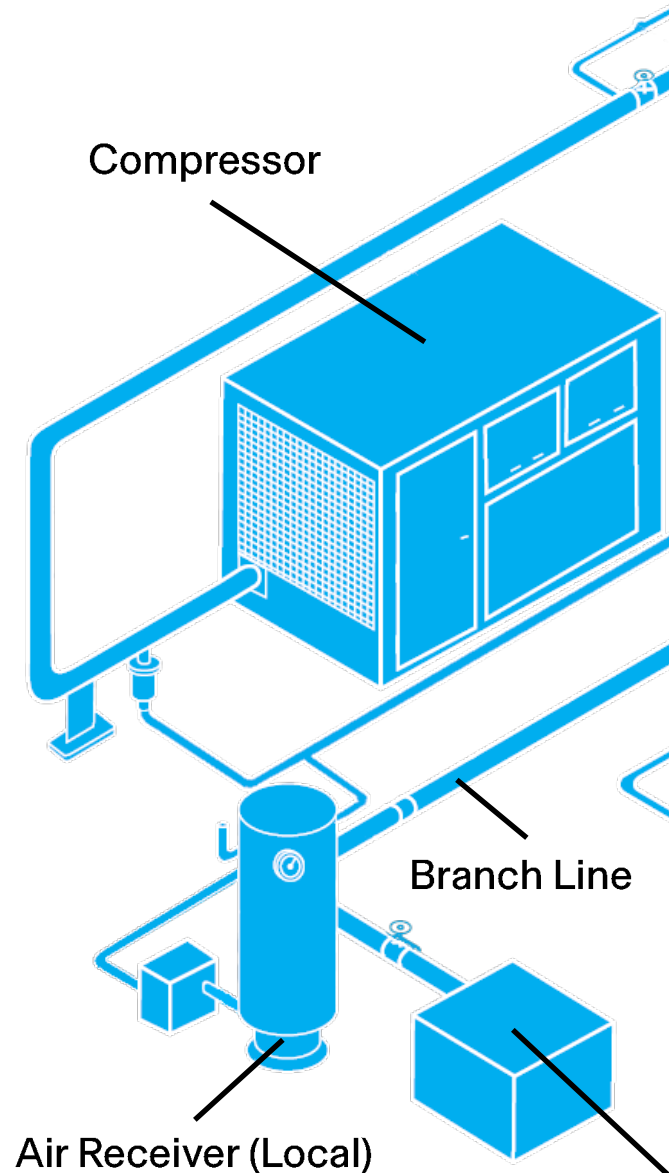
10% of an industrial business' total electricity bill is typically spent on a commonly forgotten service, compressed air systems and that percentage can be much higher for many sectors. By taking targeted action to make your compressed air systems more efficient, you can reduce this cost to your business and get the most out of your existing services.

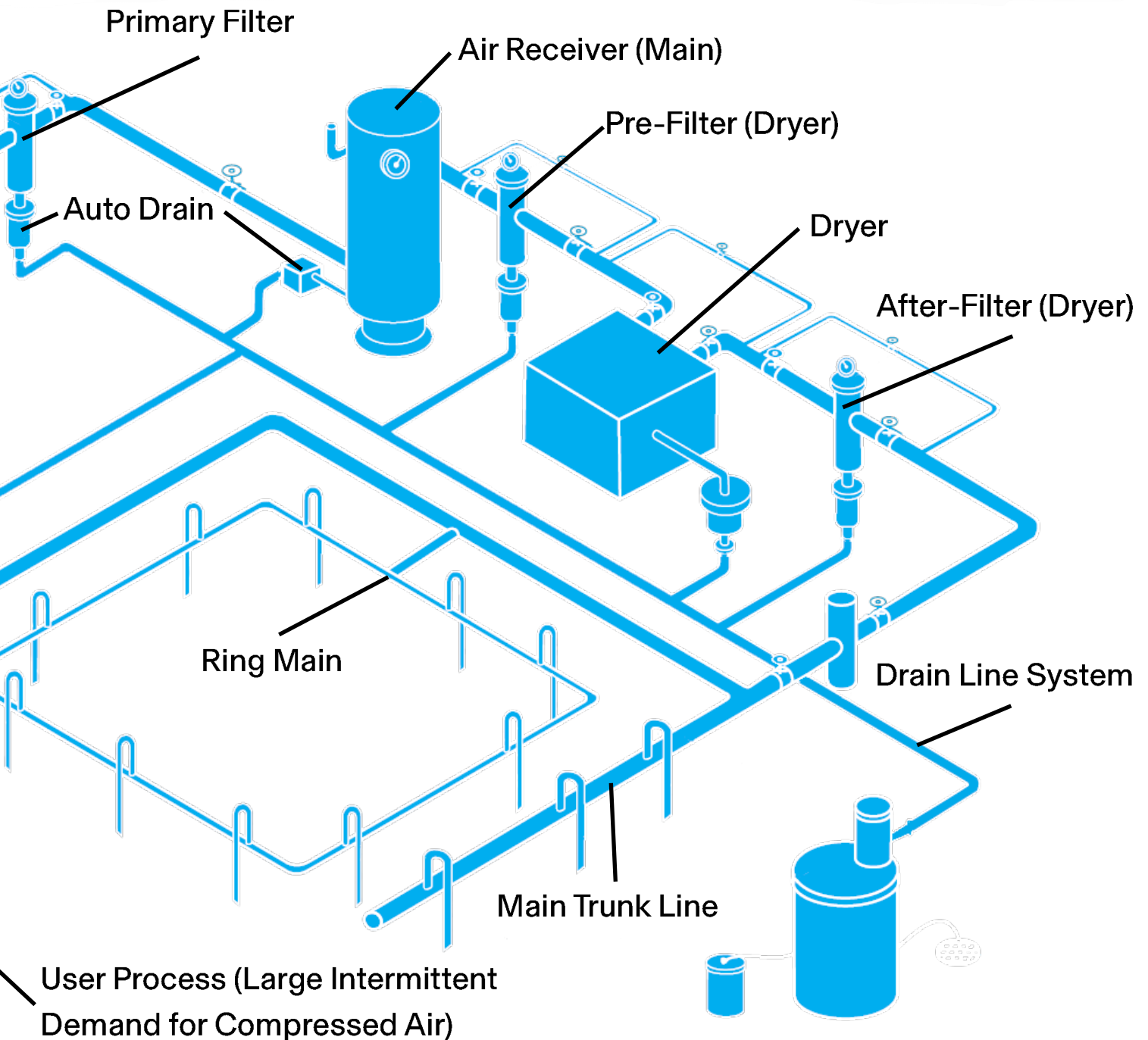
Reducing compressed air waste will allow you to save on energy costs while also improving your equipment's reliability, productivity and production output.

To the right you can see an example displaying the interconnected nature of a compressed air system, how each element has an impact on each other and the overall energy consumption. It is important to look at the whole, and not just one aspect of the system when looking to optimise. By keeping each piece and it's effects on the overall performance in mind you can find significant opportunities to save on energy.

For example, even with the most efficient compressor on the market, if it is connected to a system that has a 40% leak rate, all it provides is the ability to produce waste more effectively.

While the compressor unit represents the largest energy consumption in the system, it is important to look at the overall demand on the system, it's design, and how it is maintained. These aspects can have massive effects on the overall energy consumed by the system





Shape Energy Compressed Air System Audits and Inspections

All compressed air systems develop leaks over time. These leaks are often ignored, as they do not pose an immediate health and safety risk. However, these leaks can result in growing energy wastage, and reducing them is an important part of reducing your energy costs.



As a systems leak rate increases, issues such as fluctuations in pressure will occur with increasing frequency, resulting in hidden costs like slower running of tools and equipment that rely on compressed air and even complete stalling of machinery vital to your business. It can also cause health and safety concerns such as increased noise in the environment.

The key to reducing these leakages is to properly identify, locate and measure them. Shape Energy's team of service engineers have the tools required to fully survey your compressed air systems to tag and record any leaks, prioritise them and begin repair works.

Our engineer's are able to provide whole system audits and inspections of your compressed air systems to ensure that the your current equipment works correctly and is right for you. Regular inspections can ensure that leaks are resolved before they compound to cause bigger problems.

It can also save you from unnecessarily upgrading your compressed air systems in order to solve the perceived problem of having too low pressure, when the real problem is pressure drops due to leaks in the piping and joints. By repairing leaks in your systems you may also find that you are able to reduce the pressure generated by your compressor while still receiving the correct pressure further down the line, producing more energy savings.

Auditing may also find that piping can be split into isolated zones to reduce the effect of leaks as the develop and identify redundant piping that can be removed from the system. Ensuring the pipework is right for your use case is vital if you want to reduce your energy consumption.

Common leakage sources include:

- Air using equipment being left running when not needed
- Manual condensate drain valves being left open
- Hoses and couplings leaking
- Pipes and joints leaking

Shape Energy Compressed Air System Monitoring and Control

By properly monitoring and controlling your compressed air systems, you can instantly see the current productivity and efficiency of your systems and make informed decisions about how to operate it, as well as if repairs or upgrades are needed. By installing monitoring systems, you can save on the cost on systems maintenance and help you to reduce operational costs.



We have a number of monitoring hardware options that can be installed throughout your compressed air system. Industrial Edge Gateway devices installed in your air compressor units can give you a full readout of relevant information, including power consumption, output pressure and efficiency. Paired with flow meters throughout the piping system, each measuring the pressure as compressed air moves through the system, you can easily determine where and when pressure drops and leaks occur, as well as how the system is currently being used.

This hardware can remotely send this data to our cloud-based web application, where you are able to see the data and control your units. Through this web portal you can receive insights into your compressed air systems.

System monitoring may reveal that pressure drops in your system is a result of the generating pressure of your generator being set much higher than is required as a result of a “better safe than sorry” approach to ensuring production continuity. The system can detect issues such as this and control the air compressor unit, automatically adjusting output pressure to the actual needs of your facilities.

By incorporating flow monitoring into your compressed air system you can build a better picture of your compressed air system usage, which can help guide you toward a system that reduces your energy usage without affecting your production. It can be an important first step to optimising your system’s costs, reliability and productivity.



Shape Energy High-Pressure Breathing Air System Maintenance and Servicing

Ensure your monitoring systems and routine checks identify issues in your High Pressure systems, as they arise. Early detection can mean that corrective maintenance is undertaken early and is less disruptive to your operations.

Effective maintenance is essential to energy efficiency and system safety. Cutting back on maintenance is a false economy, because doing so increases the energy consumed, decreases service life and reduces equipment reliability. Shape Energy are able to provide regular servicing for self-contained breathing apparatus (SCBA) systems, as well as responding to unscheduled and emergency maintenance requests.

We provide regular compressor services at the 1000, 2000, 4000, and 8000 hour marks. These checks and services ensure that the system continues to function optimally and complies with the required standards and codes of compliance, as otherwise compressor output will deteriorate by more than 10%.

To ensure that your systems are kept in prime condition for the number one priority, being the safety of people, it is important that this maintenance is only be carried out by trained personnel such as our team of experience engineers

An active maintenance schedule can keep vastly extend the life of your compressed air system, so be sure you have a qualified service provider.

Here are some additional tips on how to keep your SCBA systems in the best possible condition to reduce the likelihood of breakdowns, avoiding unscheduled maintenance:

- Locate compressors in a dry, clean, cool and well ventilated area.
- Use recommended lubricants and genuine spare parts.
- Ensure overall piping systems are regularly inspected and checked using the proper test and measurement equipment.
- Ensure regularly checked parts of the system are tagged with valid and current service stickers, completed by competent and trained engineers.
- Be aware of global operating conditions, specifically in marine environments where conditions can change such as local humidity levels.













Shape Energy—Capabilities







Core Competencies

Shape Energy is an agile infrastructure technology company that specialise in emergency and off-grid power solutions. We provide full design-install-maintain services across a range of equipment, from generators, to compressed air systems, to uninterruptible power supplies. We ensure consistency in your organisation's power supply.

As a part of Shape Group, we can harness the resources to meet the needs of your projects. We deliver clean, connected, resilient technology to our clients. The hardware and maintenance services that we provide will bolster your business for years to come.

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|  Air Compressors & Distribution Systems |  Battery Energy Storage Systems |
|  High Pressure Breathing Air Systems |  Nitrogen & Oxygen Generation |
|  Off-Grid Power |  Renewable Energy Installation |
|  Power Generation |  Micro Grid Solutions |
|  Uninterruptible Power Supplies |  Equipment Monitoring and Maintenance |

Differentiators

-  24/7 maintenance service for your energy assets
-  A team of experts across the fields of power generation, air compression, and UPS/ battery storage, able to provide design and consultancy services to meet your needs.
-  Turnkey solutions for a range of industrial and commercial setting providing quick turnaround no matter your needs
-  A range of models for assets provision to meet your needs, whether via purchase or through leasing, along with a range of options for how to manage, monitor, and service your equipment
-  Full spare parts inventory, stocked to make the turn-around of repairs on your equipment as quick as possible
-  A design team ready to provide systems customised to your operational environment

Industry Partners

Here are some of the organisations that we are proud to work alongside:



🏠 186 Station Road,
Penrose,
Auckland 1061,
New Zealand

🌐 shapetechnology.co.nz

✉️ sales@shape.co.nz

☎️ 0800 468 567

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