

REDUCE COSTS WITH COMPRESSED AIR SYSTEM OPTIMIZATION

Artic Driers International is a specialized air treatment supplier has the largest air audit capability in the country. We have ability to overview any compressed air system with our fully equipped Air Audit Division stated Allen Cockfield CEO of Artic.

We offer a full spectrum of services including leak detection, flow, pressure, power, and velocity monitoring. As well as dew point & oil carry over testing. We are able to monitor up to 8 compressor stations simultaneously

Artic started the air audit division 5 years ago and with the cost of energy rising fast, the emphasis is now firmly on compressed air optimization and air auditing to reduce air energy wastage.

Water, electricity and gas are purchased forms of power and are clean metered and paid for from the local municipality. Compressed air and steam are produced on site and are vital forms of energy for any plant, often the most miss-used and abused forms of power. They also happen to be the most expensive!

The compressor station is one of the biggest energy consumers in many factories a 200 kW air compressor, when serviced by a main line compressor company and with a power cost of R1.01 kWhr, will cost approximately R1,5 million a year when operated 24/7 52 weeks a year. An oil free compressor could cost more!



To obtain the best performance from your capital investment and receive the best return for on your electrical energy, an optimal design for the compressed air system is vital. The optimization process should consider and review the following;

Compressor Station Position, the position of the station will influence the pipeline length. Longer lines can easily lead to larger airline pressure losses. Pressure losses = power losses = higher operating costs.

Central Or De-Centralized Compressor Stations, on larger systems it may be advantageous to have multiple compressor stations, this can reduce long pipe line runs and the pressure drops associated with them.

Pipeline Sizing & design, undersized air lines will create pressure losses that wastes electrical energy. High velocities created by undersized pipe lines are an indication of this problem and are easily identified by a specialized air audit company using the right equipment.

Undersized air lines in the compressor room are very common and are one of the biggest culprits of energy wastage, undersized lines choke the air flow from the compressor room to the plant, the resulting back pressure is often enough to create a false signal for the compressor “telling it to offload”, when in reality the plant is suffering from a lack of line pressure!! Don’t assume that the discharge flange on the compressor is the line size to use, it’s not, and invariably it’s too small!

A Pipe line design that allows for minimal pressure drops as well as future plant expansion is a vital part of the optimization process for any factory. Part of this design must allow for drainage of condensates, even if low dew point dryers are in place! It must also allow for the removal of any oily waste condensate for proper disposal. It's illegal and immoral to allow oils into a storm water drain.

Compressor Selection, prior to installing a new compressor station, a qualified air energy auditor should be appointed to ensure that compressed air is going to be used effectively, at the correct pressure, and be of the correct air quality. If using an existing plant as a baseline, air flow auditing should be used to establish air consumption base lines. This assumes that an air leak audit has been undertaken and the repairs have been completed. Air flow audits should last for at least a week to provide decent trend lines.

Once this process is completed, base load compressors can be confidently selected and variable speed units can be used to balance the final top end air load. Review the need for oil free or lubricated compressors, oil free compressors can carry a heavy price tag if the air quality requirement is not applicable for the majority of the plant. A review of the compressors kW's consumed per m³ produced should be undertaken prior to purchase.

Compressed Air Treatment. The correct selection for inline filters and dryers is essential to ensure pressure losses are minimized or even eliminated, and that air treatment is not under or over specified.

Over specification will lead to increased capital and operating costs. However compressed air that is not fit for purpose on the production line will lead to premature failures of pneumatic equipment or product rejects. Both of which decay profits and increase operating costs. Similar to the compressor stations air treatment can be undertaken at source or at the point of use. If only one or two applications demand ultra clean air, then treat these applications at point of use, Using a refrigeration dryer for general air treatment is always a cost efficient option. Higher specifications for air quality will come at a higher price.

Consult an air treatment specialized company, with a long term track record, comprehensively before making your decision. Artic Driers considers the air treatment as a different industry to the normal compressor supply chain, requiring different skill sets.

Compressed Air Monitoring & leak detection. To achieve consistency the air lines should be monitored for air quality flow and pressure. Permanent air monitoring instruments are an asset that will provide a fast R.O.I. with these in place engineers can keep abreast of changes in the plant, and be aware of a dryer malfunction before the contaminated air infects the plant. Once oil infects a pipeline it's virtually impossible to eradicate the contamination!

Air flow monitoring of departments within a company allows for the services crews to monitor air consumption trends and even institute a charge per m³. If this is instituted the departments within a company become very conscious of air leaks and become the best conservers of expensive compressed air very quickly!

In conclusion, compressed air is a wonderful flexible and normally a safe form of energy. However with the constant rise in power costs any compressed air system must be well managed and optimized to reduce energy costs

Many companies can capture data, but few can provide the insight into the status of the compressed air system showing the potential for optimization and possible power savings. Engineers are on a constant search for perfection. Auditing is a first step to assist engineers an optimized compressed air system

Allen Cockfield is the CEO of the family operated specialist air treatment company, Artic Driers International™, veteran of the compressed air industry for over 40 years. Artic formed by Allen and wife Barbara in 1991, is the sole Southern African distributor for air treatment products manufactured by Jemaco SPX Dehydration, Pusan S. Korea.

Artic Driers also represents BEA Filtration manufacturer of high quality inline filtration, CS Instruments, suppliers of quality air monitoring & leak detection instruments, BryAir dehumidification systems, as well as Sepura™ oily water waste condensate management systems.