

The cost of compressed air

Calculating your compressed air costs

Compressed air is an essential energy resource but it is commonly misused and wasted which incurs unnecessary cost and environmental impact. In order to make investment decisions to better manage your compressed air utility or to improve the reliability of your system, you need to know the true cost of compressed air. It is often quoted that compressed air is 10 times the cost of electricity but this is not necessarily useful or accurate for the purposes of making investment decisions.

Another widely quoted estimation is:

Annual running cost = kW rating compressor x annual hours of operation x unit cost of electricity

However, this is merely the cost of running a compressor, not the whole system. To arrive at an exact figure will take some time and effort. As a guide, the more variables you include the more time you will spend and the more expensive compressed air will appear to be.

A 'rule of thumb'

To save time, adapting average figures that are generally accepted in industry may be sufficient for your purposes. Those companies that have gone through the process of establishing their cost for compressed air, normally end up with a figure:

between £ 0.01 and £0.03 per cubic metre (m³) of air

i.e. between 1p and 3p per m³

This is the total cost of producing a cubic metre of compressed air, i.e. it includes energy, capital, maintenance and management.

Variables affecting the cost of compressed air

There is this degree of variation in costs due to the wide range of factors affecting the cost of compressed air, the factors include:

- unit cost of electricity
- working pressure
- leakage level
- air demand profile / operating hours
- type and age of compressors
- effectiveness of maintenance
- control systems
- level of air treatment
- distribution system sizing

Some factors are easy to quantify (e.g. pressure and electricity cost), others such as the effectiveness of maintenance is less so.

Finally 1p or 3p?

So despite this variation of between 1p and 3p per cubic metre, it is still helpful to use these figures and choose one within the range depending on how efficient you think your current system is. Compressed air is the best low cost saving opportunity of any site utility and therefore investments in its more effective use usually have a short pay back period regardless of whether you use £0.01 or £ 0.03 per m³. If you have a pay-back period of less than 6 months at £ 0.01, then working out the exact cost is almost irrelevant.

If you have any queries relating to energy saving in compressed air then check out our information at www.bcas.org.uk/energysavings.asp or send an email to: technical@bcas.org.uk