

# ENERGAIR CASE STUDY

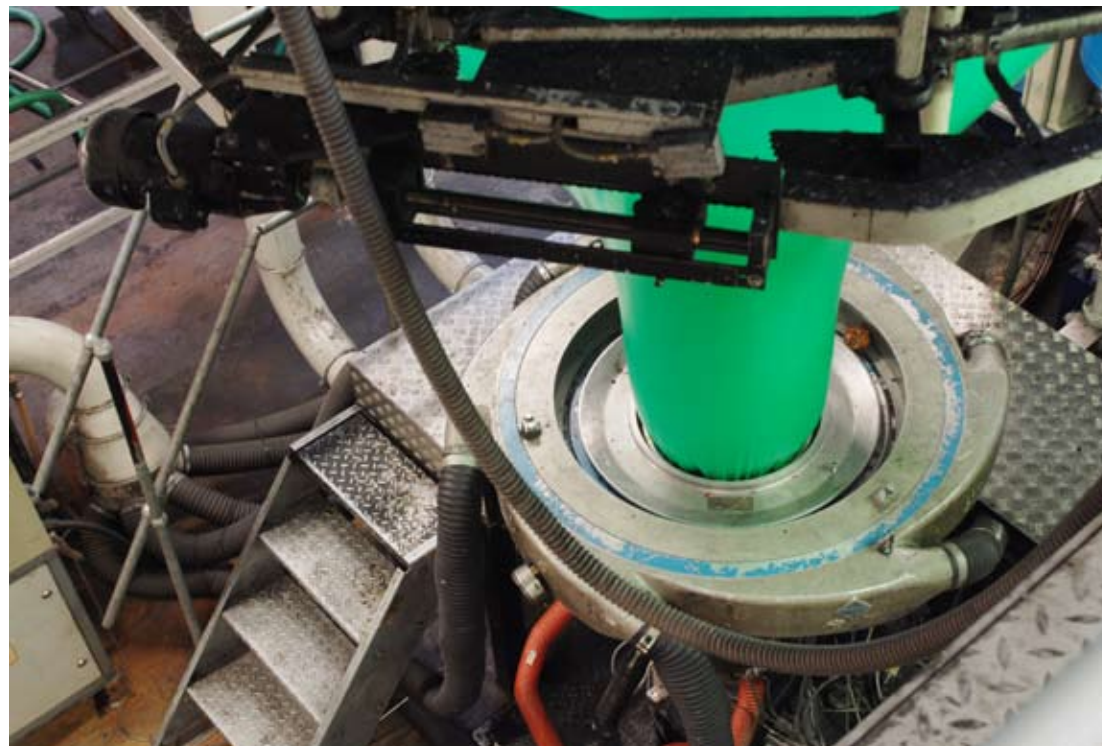


## GEL PACK



# Gelpack cuts compressed air energy bill by 45%

“Gelpack Industrial Ltd has made an annual saving of over 45% on energy used to generate compressed air using a retro-fit Variable Speed Drive package from EnerAir”



A compressed air audit conducted at Gelpack Industrial Ltd revealed that 40.18% of the input energy used to power the compressors was not productive, and that system pressure was higher than required. This was due to the inefficient operation of two fixed speed, 75kW, Worthington Rollair compressors, which were used on a rotating basis to provide compressed air to the factory. The audit highlighted

the potential savings that could be made by retro-fitting a variable speed drive (VSD) to reduce offload running and match air generation more closely to system demand.

In the current climate it is essential that all businesses reduce any energy use that is not essential. One area that can use a lot of non-productive energy is compressed air generation.





Many companies are still unwittingly operating systems inefficiently through excessive compressor idling and unnecessarily over pressurising compressed air systems. Careful management of a compressed air system can therefore lead to large savings on energy as well as reducing a company's overall carbon footprint.

Suspecting that this was the case with its own system, Gelpack Industrial Ltd commissioned an audit to test its compressed air system's efficiency. The audit lasted a total of 187.9 continuous hours,

during which data was logged every five seconds. The site consists of two 75kW compressors, both of which were fixed speed compressors. The audit revealed that 40.18% of the energy used to run the compressed air system was non-productive. The pressure in the system also fluctuated between 7.64 bar and 8.63 bar whereas the optimal system pressure for the site is 6.97.

Demand for compressed air on most sites will fluctuate. Fixed speed compressors will produce the same amount of compressed air regardless

and regulate between a loaded (low pressure set point) and unloaded (high pressure set point) state, consequently a large amount of energy is wasted on unloaded running. A variable speed drive with effective speed control is able to regulate a compressors output, replacing conventional 'low' and 'high' pressure set points with a single 'target' pressure set point.

Paul Burns, speaking for Gelpack Industrial Ltd:  
"We were aware that compressed air systems often

*run inefficiently so decided to examine the possible savings that could be made. EnergyAir was able to show how a variable speed drive, with effective speed control and a basic system control could almost halve the cost of generating compressed air. Recommending a retro-fit VSD package rather than a whole new compressor also made the costs far more manageable."*





### Actions and Results

In order to improve the sites efficiency it was recommended that Gelpack retro-fit a VSD to one of the existing compressors. Gelpack opted to install an EnerAir retrofit variable speed drive & Metacentre™ control package to ensure that compressor utilisation is optimised. EnerAir's unique drives and controls package is able to maintain the mechanical integrity of the compressor and even enhance the original equipment's electrical protection, thereby ensuring the upgrade would not adversely affect the compressor. Installing the VSD resulted in a substantially lower peak current draw and less non-productive energy usage.

Using the VSD to generate compressed air that matches demand has meant that Gelpack has seen massive savings

since installation. The system now runs with over 92% efficiency, at all times keeping within 0.21 bar of the optimal system pressure. This increased efficiency has reduced annual energy costs by over 45%, saving over £15,000 per annum.

With the savings that the EnerAir system has generated the equipment had paid for itself within a matter of months, meaning that real saving were seen in the first year. The installation was so successful that the group company Gelpack Excelsior Ltd has also now completed a similar upgrade to its compressed air system.

Paul Burns: *"With the new EnerAir system it is extremely simple to manage the entire compressed air system. The energy savings that it produces has made the entire site far more economical. As well as the savings we make on energy we are also eligible for a government grant that meant a*

*substantial discount on the equipment purchase."*

### Questions to be asked on all sites

With the tough economic climate affecting most manufacturing and ever increasing public focus on energy conservation it is important to consider ways in which energy wastage can be reduced. It is essential to ask questions of a current system to identify where improvements can be made: Has the demand profile been mapped? Are the compressors on the site the right combination of sizes?

Has energy use been recorded and benchmarked so that the impact of any changes made can be validated?

Are multiple compressors being controlled by an effective management system? Is a new VSD compressor the right solution, and can its capability for energy saving actually be realised?

Asking these questions will ensure that the potential savings on compressed air are realised. EnerAir has made the first step to identifying possible savings as simple as possible. The company has produced a free online Compressed Air Energy Savings Estimator which can be found at [www.enerair.com](http://www.enerair.com). This provides users with an accurate estimate of potential savings, both in cost and kW. For further information on EnerAir systems and potential savings please







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