

# Extraordinary energy savings in compressed air

by Imtiaz Rastgar, Rastgar & Co.

**Compressed Air can today be seen as an important raw material in any manufacturing process. With ever increasing energy costs creating new challenges for manufacturers, high dependence on suitable and sufficient compressed air supplies merits the attention of top management in any manufacturing enterprise.**

RF2M Technologies (RF2M), a UK manufacturer of electronic components for the defence-aerospace sector, is saving more than GBP 30,000 in energy costs per year after switching to a CompAir L75 variable-speed compressor with the heat-recovery system from Gardner Denver distributor, Rodwell Bayne. The system has been so successful that the customer has recently invested in a second L75 RS compressor to achieve even greater energy savings.

## Application details

The RF2M (RF/Microwave & Microelectronics) Division of API Technologies at Great Yarmouth has been manufacturing sensitive, high-tech electronics since the early 1980s. Operating 24 hours a day, seven days a week, RF2M has high-demand for a reliable source of instrument air which must also be highly efficient to ensure energy consumption remains as low as possible.



In 2007, the customer invested in its first CompAir L75 variable speed compressor, which was one of the first in the industry to have a heat recovery system fitted. Recent analysis shows how significantly this investment has contributed to energy savings at the Great Yarmouth site, as Andrew Rodwell, director at Rodwell Bayne explains: "the boiler is working up to 66% less and at times, is not required at all, creating significant cost and carbon reduction savings."

David Yates, RF2M Site Manager Praises Variable Speed: "RF2M's manufacturing processes require high volumes of air and, over the years, its existing compressors had become costly to operate, due to inefficient loading. Following an air audit of the existing installation, including power cost calculations and data logging, we recommended a variable-speed compressor with heat-recovery, with an anticipated return on investment of just 14 months.

The regulated speed technology in the L75RS produces the

correct amount of air to match RF2Ms demands, helping to reduce the risk and associated costs of off load running.

In the first year alone, the customer saved over 370,000 KWh of electricity on an average 35% compressor consumption rate, with a high percentage of this saving attributed to the efficient, variable-speed technology.

### Heat recovery

Typically, almost all of the energy that is used to power a compressor is converted to heat, which is released into the atmosphere and wasted. Using heat exchangers, Rodwell Bayne was able to develop a system to recover this energy as a source of factory heating, reducing the requirement on the site's gas boiler.

The RF2M's site manager, David Yates adds, "Despite average colder winter temperatures over the past few years, the heat recovery system is still saving up to GBP 3,000 per annum in gas consumption. Additional savings are also expected this year as we now supply our nitrogen generation plant directly from the factory-air supply, rather than using a separate, fixed-speed compressor.

Therefore, placing a higher demand on the L75 in this way has the effect of raising the temperature of the heat recovery unit, which in turn is reducing the demands on the gas-fed boiler. As a result, the boiler is working up to 66% less and at times, is not required at all, thus offering significant cost and carbon reduction and other savings.

### High reliability

The site operates round-the-clock, only shutting down for essential maintenance and therefore requiring the compressor installation to provide high reliability. The L75RS compressors have been proven in numerous applications across the globe for their high durability, longevity and ease of maintenance. [www.compair.com](http://www.compair.com)

### Benefits realised with VS Compressor

- ❖ Variable-speed technology – delivering electricity savings of over GBP 30,000 per annum .
- ❖ Heat-recovery system – Reduces requirement on gas boiler by up to 66%.
- ❖ Saving up to GBP 3,000 per annum on gas costs.
- ❖ Reduced off-load running – helping to improve energy-efficiency further.
- ❖ Higher volumes of air – sufficient factory-air to supply nitrogen generation plant, removing the need for a separate compressor unit.
- ❖ High reliability – to ensure 24/7 production is maintained.

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**Gas saved:** The boiler is working up to 66% less and at times, is not required at all, creating significant cost and carbon reduction savings. ♦

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