

## Project Report

### CUSTOMER

Wicklow based packaging manufacturer requiring full turnkey solutions for their compressed air systems, preventative maintenance sales and servicing for its state of the art facility in County Wicklow, Ireland.

### PROJECT

Offer consultancy, supply and install an oil-flooded compressor, integrated equipment and oil converter to upgrade the existing air system.

### BOGE PRODUCTS IN USE

- BC oil converter
- 90 kW SLF 125 oil-flooded screw compressor
- DS180 refrigerant drier
- Duotherm exchanger
- Airstatus external monitoring system



# Oil-free compressed air – without oil-free compressors

Are oil-free compressors the only way to guarantee oil-free compressed air? With help from BOGE Compressors and their distributor for Ireland, ILS Engineering, one packaging manufacturer has found an alternative requiring substantially less investment – and has made impressive efficiency savings as well.

When planning to upscale the machinery at its plant in Wicklow, Ireland, switching to oil-free compressors seemed the only option that would satisfy ILS Engineering customers' air quality demands. Instead, the existing air system has now been upgraded by adding a new oil-flooded compressor, along with integrated equipment including a BOGE BC oil converter.

Independent testing shows a reduction in airborne oil concentration to 0.0006 mg/m<sup>3</sup>. This is much cleaner than the industry-

specified limit of 0.009 mg/m<sup>3</sup> and is far better than the test results achieved by many systems with oil-free compressors. The new set-up also generates compressed air more efficiently and reduces energy bills further through effective heat recovery.

### Packaging perfection

This manufacturer, has been producing for over 80 years, offering a wide range of standard and bespoke packaging designs. To maintain the quality and safety of the packaged products they must be free from contamination.

Compressed air is essential to powering the company's operation and is fed into almost all equipment used for manufacturing plastics. This includes everything from the injection moulding machine to raw material transport and feed systems, valves and product assembly lines.

## PROJECT INFORMATION

### > THE CHALLENGE

With an expansion in production, the Wicklow based packaging manufacturer needed to upscale its compressed air supply to ensure its plastic packaging wasn't contaminated during the production process. Compressed air is essential in powering the company's operations and the packaging firm was finding it was having to rely more and more on the standby compressor. The system was no longer meeting demand, with downtime a real issue, and switching to oil-free compressors would require major investment.

### > THE BOGE SOLUTION

Rather than making a snap decision to replace the system with oil-free compressors, ILS Engineering offered consultancy and came up with a better and cheaper option for their customer. An integrated system including a Boge BC oil converter, a new oil-flooded screw compressor and a Duotherm heat recovery system.

### > THE RESULT

Annual energy savings of €44,000, a saving of €500,000 compared to switching to oil-free compressors, better air quality to well below the industry specified limit, greater productivity from increased power and no downtime during installation.



### Air challenges

Wicklow-based industrial equipment supplier and maintenance specialist ILS Engineering services this site's compressed air system.

The Maintenance Manager overseeing the operation explains: "Continued expansion of production meant we needed to upscale our compressed air supply for current and future needs. We had one duty and one standby compressor, and found we were having to bring in the standby more and more frequently. The system was struggling and occasionally we had to turn off some of our machines to reduce the air demand."



After analysing air consumption, ILS identified the size and type of compressor – and related components – that would be needed. During this process, it emerged that the demand for oil-free air had become the main consideration. To switch to oil-free compressors would require major investment – and even more so to replace the existing oil-flooded systems across the company's other sites.

### The solution

ILS Engineering Service Manager, Paul Kelly, takes up the story. "Rather than specifying an oil-free compressor, which many see as the only way to go, we worked back from the air quality required. We found we could achieve it at a fraction of the price and allow the customer to keep their oil-flooded equipment, by including a BOGE BC oil convertor in the set-up. This unit effectively converts oil hydrocarbons from the air into carbon dioxide and water."

The new oil-flooded screw compressor is a BOGE SLF 125 model. Its energy-saving features include direct connection between the air end and motor. It also has variable speed control, which enables optimal adjustment to meet changing needs and avoid working unnecessarily hard. Its free air delivery of 554 CFM is a substantial increase over its predecessor.

A BOGE DS180 refrigerant drier, complete with filtration, extracts water and other contaminants from the air. A BOGE Duotherm recovers heat from oil and transfers it into the building's hot water system. BOGE's Airstatus external visualisation and monitoring system, connected through a portal to the BOGE data centre, provides vital information, analysis and alerts via mobile app or desktop. There is no ongoing subscription cost for this management tool.





Installation took just two days and was completed during the Christmas break with no interruption to production. The old duty compressor has been retained as a standby, while the old standby will also be available for use.

#### Results in brief

- High-quality air – oil concentration 0.0006 mg/m<sup>3</sup> – well within required limit of 0.009 mg/m<sup>3</sup>
- Improved air efficiency – estimated annual saving of €13,000 to €14,000 on energy input
- Lower heating bills – estimated annual saving of €30,000 on water heating bills thanks to heat recovery
- Lower downtime and higher productivity – with increase in compressor power from 55 to 90 kW
- Lower purchase cost – estimated saving of €500,000 across all sites, compared to switching to oil-free compressors

#### Customer satisfaction

The ultimate decision to go ahead was made by the Plant Director, who enthused: “We considered the BOGE and ILS solution carefully and it ticked every box. When we saw the independent test results, we were all very surprised and impressed by what it could achieve.”

He adds: “They could have simply sold us oil-free compressors, which would have made more money for them, but they chose to find a solution that worked better for us. I think this says a lot about how important long-term customer relationships are to them.”

He concludes: “Many companies in this market are being told they need oil-free compressors, but we’ve shown that this isn’t always true. If customers tell us their air requirements, we’ll explore the options and give them the best solution at the best price.”

