

The £205k air leak no-one noticed

How Rubix helped a premium snack manufacturer uncover over £205,000 in annual energy savings.

A leading UK premium snack manufacturer prides itself on the quality and craftsmanship of its hand-cooked products. But even the most efficient production environments can hide unexpected costs – particularly when it comes to energy-intensive utilities like compressed air.

During a routine site visit, a Rubix Value Delivery Specialist spotted exactly that: an opportunity to optimise the compressed air used to assist the movement of potatoes through the production process.

What followed was a detailed engineering investigation that revealed more than £200,000 in potential annual savings – simply by rethinking how compressed air was being used.

Challenge

The opportunity emerged during a walk-through of the potato handling process. Along each of the facility's two production lines, compressed air was used to assist potatoes moving down angled stainless-steel chutes fitted with vibration units. Air jets provided an extra push when needed – a common solution in food processing environments.

However, one detail stood out: the air blasts were running continuously. Although operators could switch the air supply on and off, in practice it was left running throughout production for convenience. This raised an important question – how much compressed air was actually being used, and what was it costing the business?

Industry sector:

Food & Beverage

Application:

Compressed air system

Actual saving:

£205,547

Payback period:

12 months

Product/Service:

- > Compressed air consumption audit
- > Pneumatic process optimisation
- > Intelligent control solutions

Customer Benefits:

- > Identified £205k annual energy savings
- > Reduced compressed air waste and operating costs
- > Improved process control and blockage detection

How much compressed air was being used, and how much was it costing the business...

Solution

To answer the question, a Rubix Applications Engineer analysed the system in detail. The investigation revealed twelve air jets across two production lines, each with a 6mm nozzle supplying compressed air at 0.4 MPa (4 bar).

Using calculation tools based on British Compressed Air Society guidance and SMC technical data, it was estimated that each nozzle consumed around 1,629m³ of compressed air per hour when running continuously.

Operating 24/7, each nozzle cost £17,128.98 per year in energy. Across all twelve jets, this equated to £205,547.76 annually – turning a simple operational convenience into a significant hidden cost.

Rather than recommending a single solution, the Rubix team proposed three approaches. The first was a simple efficiency upgrade, replacing the existing fittings with engineered air nozzles that could reduce air consumption by around 10% with minimal investment.

The second introduced timer controls, cycling the air jets on and off at set intervals to cut runtime by up to 50%. The third option used optical sensors above each chute to activate the air blast only when potatoes stopped moving. If movement still didn't resume, the system could trigger an alarm to alert operators to a blockage.

This approach tackled the root issue, ensuring compressed air was used only when needed rather than running continuously.

Result

Rubix presented the snack food manufacturer with detailed costings and projected savings for each proposed solution.

While the nozzle upgrade offered a quick efficiency gain, the sensor-controlled system represented the most advanced option. With projected return on investment between six and twelve months, it had the potential to transform a continuously running system into a responsive, demand-driven one.

By identifying and quantifying what had previously been an invisible energy cost, Rubix has demonstrated that significant savings can be unlocked simply by applying engineering insight to everyday processes.

“...the sensor-based solution would ensure compressed air is only used when it is genuinely needed”



Crisp manufacturing process



Air jet nozzles being run continuously

