

Well Blow Me Down—Two Dryers Are More Cost Efficient Than One

The Challenge

A large manufacturer of recyclable waste sorting machinery was building a state of the art recycling facility in Coventry and approached Maziak to design the compressed air system.

The plant uses optical sorting machines to identify and discard unwanted waste materials. Large volumes of compressed air blows through nozzles to remove this surplus waste. These optical sorters are critical and so risks of fogging must be mitigated to avoid costly downtime. Fogging occurs when the ambient temperature is near or lower than the pressure dewpoint of the compressed air system.

The requirement was therefore to provide an air quality class of 1.3.2 as measured by ISO 8573-1:2010. The water vapour class of -20°C pressure dewpoint, is to prevent fogging during operation in colder months. They were also looking for a dryer to meet their demand without the need for a back up system.

Maziaks' Solution

In designing the system, Maziak factored in that in the milder summer months in the UK, with average ambient temperatures above 10°C for 6 months of the year, the -20°C pressure dewpoint was not required and that a refrigerant dryer producing a pressure dewpoint of $+3^{\circ}\text{C}$ would provide the necessary air quality class and prevent fogging of the optical sorters. We therefore recommended installing:

- ♦ The energy efficient **Parker WVM 520 - a heated vacuum regeneration desiccant dryer**, capable of producing compressed air at a pressure dewpoint of -20°C up to $95\text{m}^3/\text{min}$ @ 9barg. This air quality requirement is only needed in the colder months.
- ♦ A lower power consumption, energy and cost saving **Parker PSE 900 refrigerant dryer** to operate during the warmer months of the year.

This solution has built critical redundancy into the compressed air system, allowing regulatory inspections and planned maintenance of the dessicant dryer to be carried out during the summer months.

Results

Maziak's solution delivered against the original specifications and more. We designed and recommended a compressed air system with a back up system that would save energy and money rather than cost more. After the initial payback period of 2 years, our customer will save energy and money with this two machine configuration rather than running the more energy hungry dessicant dryer the whole year round.

Backed up by energy efficient HPC compressors and a Sigma Master Controller, they will benefit from further energy efficiency savings and a reduction to their overall carbon footprint.

