CompAir

CASE STUDY

FOOD & BEVERAGE

CompAir cuts energy costs by 25% at the Einbecker Brewery

One of the oldest breweries in the world, Einbecker Brewery, has upgraded its existing compressed air units to the Ultima technology from leading compressor manufacturer CompAir predicting to cut energy costs at the facility by up to 25 per cent.

Application details

Based in Einbeck, Germany, the Einbecker Brewery dates back to the 14th Century, with the oldest available receipt for the sale of Einbecker beer from 1378. Compressed air is used in the production process for brewing and bottling of the brand's renowned bock beers and speciality lagers.

While the site is historic, the company is always looking to invest in new technology; including its existing compressed air system, which was more than 20 years old and consisted of four oil-free, fixed speed compressors.

With limited on-site space, the Einbecker Brewery required a compact new solution that could provide reliable and energy-efficient compressed air, while also meeting the stringent air quality requirements demanded by the site's operations.

Christoph Benseler, Technical Manager at the Einbecker Brewery, said: "Given the nature of our business, we absolutely cannot compromise when it comes to air quality and purity. In addition, brewing is an energy-intensive process. We needed a new compressed air solution to deliver improved operational efficiencies, help reduce our energy costs, and it had to be accommodated in the very tight installation space that was available on-site."

Overview

Customer
Einbecker Brewery

Location
Einbeck, Germany

Application
Brewery production processes

Solution
CompAir Ultima oil-free compressor

Customer Benefit
- 25% energy reduction
- Highest air quality standard
- A compact compressor installation

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Christoph Benseler, Technical Manager at Einbecker Brewery

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Brewing success

In order to meet these demands, CompAir has supplied two new 110kW Ultima compressors to the site.

Ultima is a ground-breaking oil-free system, featuring a truly innovative design that helps drive energy efficiency without compromising on air quality.

Dr. David Bruchof, Product Manager,Industrial Compressors EMEA at CompAir, explains: "Ultima features two highly efficient, permanent magnetic motors that replace the traditional gearbox set-up. These variable-speed motors can achieve speeds of up to 22,000 RPM and efficiencies greater than IE4.

"Traditional models rely on a gearbox, which creates friction and results in efficiency losses, while also requiring high volumes of oil to lubricate the gears. In contrast, Ultima's motors directly drive the airend without the need for a gearbox, continuously monitoring and adjusting the speed of each airend. This ensures maximum efficiency and pressure ratios at all times."

Due to these improved efficiency levels, only two Ultima units were required to meet the Einbecker Brewery's energy demands, in place of the four compressors that were previously installed. This ensured the site had less compressors to manage, meaning the Einbecker Brewery could realise the associated cost reductions that come with this, too.

The compact size of Ultima was another key selling point for the Einbecker Brewery. The machine's footprint is 37 per cent smaller than a conventional two-stage compressor. As a result, the two new compressors were able to easily fit into the available installation space.

Another key benefit is that, while conventional models still use oil to lubricate and cool both a system's motors and airends, Ultima uses water in a closed-loop circuit to cool these components. This allows greater heat transfer and cooling efficiencies, as well as ensuring as little oil as possible is used in the system for assured air purity.

The heat recovery capability of Ultima is something that the Einbecker Brewery is looking to take further advantage of in the future. With over 90 per cent of compressor energy being converted into heat, Ultima's closed-loop circuit allows the maximum amount of energy to be recovered from the system. The unit can then act as a water heater, heating the cold water that enters the compressor, which can then be used for other applications.

Water-cooling also places less stress on components, limiting the opportunity for any maintenance issues that might otherwise arise during the compressor's lifetime and reducing servicing costs.

Christoph Benseler, Technischer Leiter adds: "Ultima offered the best technical solution, coupled with the lowest lifecycle costs. The new compressors have supplied reliable and high-quality compressed air for our production processes, and are set to reduce our electricity costs by up to 25 per cent. We could not be happier with the outcome from Gardner Denver."