

## Combining F-gas Compliance with Sustainable Cooling

Services: [Refrigeration Plant Renewal](#)

### Project Overview

Bidfood is one of the largest food wholesalers in the UK, supplying the catering industry with a wide range of food, drinks and catering supplies. At their Basingstoke depot, Bidfood were facing rising costs of refrigerant R404a for their aging plant which services their freezer cold room.

Bidfood's brief had three key requirements:

- A long-term solution that would remain unaffected by the F-gas Regulations
- A phased installation to enable the freezer cold room to stay operational throughout
- Lower running costs for their plant

The project was carried out while the UK was experiencing unusually high temperatures, and with our precision approach to planning and delivery, Bidfood experienced zero disruption to their extremely busy warehouse operation.

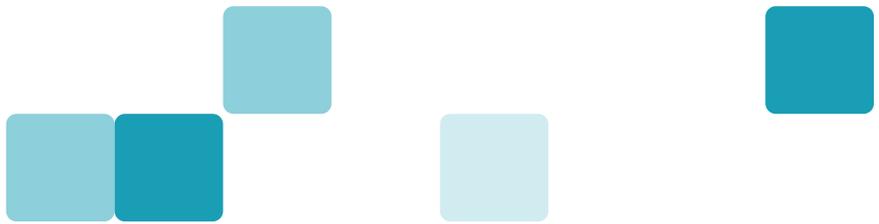
### Our Solution

We installed a transcritical CO<sub>2</sub> refrigeration system, an externally packaged unit designed and built to withstand the elements. With its compact footprint, this unit made best use of the available space while providing optimum cooling capacity.

This was linked to four evaporators, which were replaced in phases so that Bidfood's freezer coldroom remained operational throughout the installation. We also installed an RDM data manager touch display which provides performance monitoring and system remote access. It was linked to incorporate the other existing cooling systems, thereby facilitating monitoring capabilities across their estate.

R744, the natural refrigerant CO<sub>2</sub>, was selected for Bidfood's depot, chosen for its:

- Cost stability compared to many HFC refrigerants
- Environmental credentials – CO<sub>2</sub> has a GWP of 1 and an ODP of 0



- Future-proofing – it's an excellent long-term investment as CO<sub>2</sub> is not F-gas regulated

### Project Challenges

The project was completed during one of the hottest summers on record, with much of the work taking place within the freezer itself which operated at -21C. Working at such an extreme temperature was challenging, with careful planning needed to complete the work on the support steels inside the freezer on time.



To avoid a costly shutdown or requirement of temporary equipment, the plant needed to be replaced in phases to ensure the continuous operation of the freezer. With temperatures outside consistently reaching 30C, it was essential that we executed the delivery of the installation with absolute precision, to avoid freezer goods being compromised.

### Key Benefits

- The new system is more cost-effective in terms of running costs, as R744 is a readily available refrigerant with cost stability compared to many HFC refrigerants
- This has also future-proofed Bidfood's Basingstoke depot against the refrigerant legislative changes in 2020 and 2030 as R744, a naturally occurring gas, is not impacted by the F-gas Regulations
- By locating the plant outside, additional storage space was created inside the depot. In addition, an extract system wasn't required, helping to reduce capital costs and ongoing maintenance

- Through the careful selection of plant, we carried out the installation in phases so that the site remained fully operational. This meant that temporary equipment wasn't required which minimised installation costs
- The coldroom freezer is now more efficient thanks to the installation of an additional cooler which provides greater air movement. The cooler was also fitted with defrost hoods and return air hoods, which has further enhanced performance using less electricity for defrost and ensuring adequate air flow
- The RDM data controls installed have given Bidfood remote access to the site, which provides invaluable information should a system fault be detected. We can access this information and dispatch the most appropriately skilled engineer, as well as monitoring the plant in a live environment to enhance the performance of the system for optimum efficiency

*"Space Engineering delivered us a first class one stop solution from design to install and final commissioning during what was one of the hottest years on record with zero disruption of our extremely busy warehouse operation."*

**Kevin Kinghorn,**  
Regional Facilities Manager, Bidfood

