



Case Study

space.
engineering services

From R22 to CO₂: Danish Crown Upgrade their Operations

Refrigeration Design, Installation and Service & Compliance

Project Overview

Global meat processing company Danish Crown sought out Space Engineering Services to upgrade their R22 cooling system to facilitate the introduction of new product lines at their 5,700 m³ production facility in Manchester. Coupled with the impending service ban on using R22 in existing equipment, Danish Crown needed a customised solution. The key objectives for the project included:

- The modernisation and futureproofing of their equipment to maintain compliance with the F-gas Regulations and minimise exposure to rising costs of R22
- Increased plant cooling capacity to cool five additional processing areas to support new production lines
- Reduced operational costs, energy consumption and carbon emissions
- A long-term service and compliance arrangement to provide plant reliability and compliance

With the equipment situated in a live food processing environment, adhering to stringent environmental control regulations was paramount. Due to the site's location in a residential area, the new plant also had to be within strict noise parameters.

Our Solution

Working closely with Danish Crown to understand their exact requirements, we proposed the following solution:

- Replacement of the main store refrigeration plant with a CO₂ system with built-in heat reclaim potential, and installation of the associated evaporator controls and leak detection equipment
- An on-going service and compliance programme for their heating, ventilation and cooling equipment

We installed two single temperature refrigeration packs to deliver high capacity cooling with a compact footprint, as well as in-built heat reclaim technology to deliver significant energy savings. This was a large-scale CO₂ application that called upon the specialist knowledge and expertise that Space Engineering Services has gained over two decades by working in industrial environments.

Understand. Innovate. Deliver.

For further information on how Space Engineering Services can help your business, please contact:

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Key Benefits

Space Engineering Services met and exceeded Danish Crown's expectations for the project, delivering the following transformative benefits:

- Increased cooling capacity - Danish Crown introduced new product lines to support their 'farm to fork' concept of food supply, while simultaneously modernising their site
- A significantly lower environmental impact - CO₂ has a global warming potential of one, and CO₂ systems are up to 40% more energy efficient than HFC systems in most climates
- Reduced risk - we safe-guarded Danish Crown against increasing prices and reduced availability associated with HFC/HFO refrigerants. CO₂ offers cost stability, readily available service capacity and is suited to a wide array of applications
- Free energy – waste heat is recovered from the packs and is being used for a hot water wash down system and to provide heating to a staff area. This has resulted in significant reductions in energy costs, with approx. 40kw of waste heat recovered per pack



Our Delivery

To meet noise requirements, the main refrigeration packs were installed in an external store area and two ECO gas coolers were roof-mounted. 13 large-scale energy efficient evaporators, ideally suited for industrial environments, were installed along with an efficient control system with remote access system interrogation and a CPC leak detection system in line with the F Gas Regulation.

Effective project management enabled us to minimise disruption to site operations. For example, we used a phased delivery to ensure continuous cooling without halting production operations.

The installation was highly successful, and we received excellent feedback from Danish Crown for the new plant and the business improvements it facilitated.