

CASE STUDY: The Ice Co

PROJECT: Refrigerant Conversion

THE ICE CO STORAGE & LOGISTICS BRINGS COLDSTORE REFRIGERATION PLANT BACK TO LIFE WITH THE HELP OF STAR REFRIGERATION

Star Refrigeration Operations Group has built upon its long and fruitful relationship with The Ice Co Storage and Logistics company with the successful replacement of its Coldstore plant in Newark through Star's Leeds branch.

The site had originally belonged to the ice manufacturing branch of the business, but due to expansion at other sites and a streamline of production, the site had become unused. Looking to lease the plant to a third party for refrigeration, storage and distribution purposes, the company invited Star to assess the costs of making it operational again.

Paul Martin, Managing Director from The Ice Co Storage and Logistics said, "We've had a strong relationship with Star over the years, and knew they had the expertise for the job. We saw a business opportunity in our unused cold store, and with the cost-effective and highly-efficient solution provided by Star, the company has since achieved its initial aim of leasing the plant to a third party."

This invitation was extended on the strength of the strong relationship which Star has enjoyed with The Ice Co Storage and Logistics over many years

and across a wide variety of projects. In recent times, Star Refrigeration has overseen the successful conversion, replacement and refurbishment of plants in Preston, South Kirkby and Wallsend through its local engineering teams located at Star's Newcastle and Manchester branches.

Furthermore, The Ice Co Storage and Logistics are one of many businesses to benefit from Star's award-winning refrigeration energy management system Ethos, which scooped Refrigeration Product of the Year at the 2018 National ACR & Heat Pump Awards.



The new condensing units on site

On the strength of these impressive credentials, The Ice Co Storage & Logistics deemed Star to be the best fit for the job in hand. Noting that the original Coldstore plant operated with a R404A refrigerant and an F-gas, currently being phased down by new regulations, Star concluded that in order to reinstate operations, the plant would require not only a controls upgrade and a condenser replacement, but also refrigerant

conversion. These costs would have amounted to roughly the same as replacing the existing common plant with all new facilities; upon discussion with the client, it was agreed that comprehensive replacement represented the best option.

Once the solution had been decided, the supply, installation and commissioning of the new plant was carried out as a branch contract through Star's Leeds branch. The new plant took the form of two DX R449A condensing unit plants, both of which serve a single ceiling-mounted evaporator within the Coldstore. Both units operate at 36kW, which represents 65% of the maximum design duty, affording a solution which combines performance with resiliency.

Star took advantage of an existing concrete plinth situated at ground level directly behind the internal evaporators to install the condensing units, while two networks of interconnecting pipework were run up the outside of the building to reach the roof void above the evaporators. This achieved a practical solution which minimised installation time, expense and effort.

Star also prioritised energy-efficiency in this project. By incorporating the same electronic expansion valves, EC condenser fans (known to reduce energy consumption by up to 20% on their

own) and a skip-defrost function in use at similar projects elsewhere in the group, Star were able to guarantee optimal energy consumption.

Meanwhile, the original plant operated with a glycol underfloor heat mat (UFHM), which is atypical for a plant of its kind. Keen to use this UFHM as a platform to improve the plant's energy-efficiency even further, Star installed heat recovery exchangers which recovered excess heat energy from the HP liquid line of each condensing unit and pumped it back into the UFHM as a green source of heat. This was a complex strategy not normally employed at refrigeration plants of this kind, but Star believe that its implementation will serve the company (and the third party which leases the plant) well in the future and as such represents an important investment and a reflection of both companies' forward-thinking values.

Star worked closely with the client at every stage of the process, from identifying the best course of action and handling the finalisation of the branch contract, on through the design, supply and project management of the operation to the plant's installation, commissioning and handover. In this way, the whole process was made incredibly simple for The Ice Co Storage & Logistics, who were very happy with the end product.

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For the same price as a basic refurbishment and upgrade of the original R404A plant, the client obtained a complete replacement of the Coldstore, which now meets all current regulations, enjoys increased energy-efficiency and represents an additional avenue of revenue through a third-party lease. What's more, the project included a comprehensive maintenance contract for the first 12 months of the plant's operation, ensuring it's not only a reliable and lucrative asset today, but safeguarded by Star's ongoing relationship with the company for the future.

With the cost-effective and highly-efficient solution now in place, The Ice Co Storage & Logistics have since achieved their initial aim of leasing the plant to a third party.

Star's long and prosperous relationship with The Ice Co Storage & Logistics is emblematic of its wider ethos and business practices. With nearly 50 years in the business, Star Refrigeration have now grown to become the largest independent refrigeration and heating, ventilation and air conditioning (HVAC) contractor in the British Isles. In total, the business employs more than 300 staff at nine national branch locations and has extensive experience of delivering practical solutions and services to global leaders in the industry.

Due to the multitude of locations throughout the UK in which Star operates, they are perfectly placed to offer impeccable service, fast response times and 24-hour technical support to businesses anywhere in the country. With each branch fully equipped to provide consultancy, design, installation, commissioning and maintenance of cooling solutions to businesses in a wide variety of industries, Star has built a reputation for delivering exemplary standards at local, national and international levels.

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