



The Customer

J&D Cowper has developed during the last 20 years to become one of the premier refrigerated transport companies in the Highlands. From their base in Ross-shire, they work with a cross-section of customers – from local producers to multinational supermarket chains, delivering a broad selection of temperature controlled freight, to clients including Lidl, Asda, and Tesco.

Key Project

ACE Refrigeration was responsible for the design, supply and installation of a Frozen Food Room as well as a new Blast Freezer at their Evanton site.

Cooling Capacity

The Frozen Food Room had a footprint of just less than 5,000m³ and required 10,000kg of produce entering at -15°C, to be pulled down to -25°C within 12 hours. The Blast Freezer called for 4,000kg of produce entering at 0°C to be pulled down to -18°C within 12 hours. Refrigerant R407f, with a GWP of 1850, was used for both the Frozen Food Room and the Blast Freezer.

Energy Efficiency Features

For some organisations, refrigeration costs can represent more than 50 % of their energy bill, and 20 % of that can be wastage. A modern and energy-efficient refrigeration system will help save you money; we know where energy savings can be made and how to get cost-effective and efficient systems up and running in your business.

Screw Compressor

The design included an economised screw compressor as this allows us to sub-cool the liquid to -5°C which helps to reduce energy consumption.

▶ **Trusted**

▶ **Innovative**

Product Probe Control

The cooling process is frequently operated prematurely due to temporary hot air being drawn into the room when the door is opened. If the door was closed and the cooling was not started the heat energy stored within the thermal mass of the stored product would cause the room temperature to drop back to an acceptable level. By using a simulated product probe the cooling process is only activated when dictated by the stored product, reducing the compressor operating times.

Cyclic Evaporator Fan Control

With long term storage applications, once the product is reduced in temperature and the door is closed (in particular overnight) the only heat source is the motor heat generated by the evaporator fan motors, this motor heat causes the temperature to rise and the cooling to energise. Our proposals are typically based on cycling the fans off when the room is at temperature to prevent this heat build up. To prevent any product hot spots the fans are re-energised after one hour to operate for five minutes.

Adaptive Frost

Conventional logic has evaporators defrosting every six hours for thirty minutes. Our proposals are typically based on the evaporator controller measuring the performance of the defrost cycle. Should a defrost cycle achieve the required termination temperature within 10 minutes the next scheduled defrost will be skipped.

Temperature Monitoring

The temperature monitoring data manager continually monitors and logs the temperature of the plant to ensure all systems are operating accurately. All data recorded is stored historically within the data manager for full traceability. Temperature recordings are logged in 15 minute intervals and can be viewed as a graph or on a table.

▶ **Independent**

Food Processing Industry Specialists

Reliability, efficiency and product integrity are the key words in the food processing industry, we know you cannot afford wastage and need to keep your customers happy. Our refrigeration plant also incorporates temperature monitoring systems, which are both HACCP accredited, BRC compliant and conform to Food Safety and Inspection Service standards.

We have carried out major design and installation projects for cold rooms and freezer rooms, ice generators, chilled production facilities and blast chillers and freezers for food processors, bakeries, dairy companies, the fish and seafood industry, the meat business and fruit and vegetable sectors throughout the country.

Other Clients in the Food Processing Industry include:

- 2 Sisters Food Group
- Castle MacLellan
- Scottish Sea Farms
- Albert Bartlett Potatoes
- Glenrath Farms
- Associated Seafoods
- First Milk
- DFDS Aberdeen
- Braehead SFO
- Campbell's Prime Meats
- Caledonia Cheese
- Drysdale Vegetables
- Galloway Seafoods
- Inverawe Smokehouse
- Marine Harvest
- McGhee's Family Bakers
- Edinburgh Salmon Company
- Young's Fraserburgh

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