CASE STUDY

green cooling

PROJECT CASE STUDY:

Food Manufacturing & Production

Project

The Design and Installation of a complete new Refrigeration System to support a large scale food production facility, comprising of Blast Chilling/Freezing, Cold Storage and Recycled Waste heat.

Edgmond Foods

Application

Edgmond Foods is a Midlands based high quality manufacturer of chilled and frozen pastry based food products with a trading history going back over 25 years.

This family run business employs over 100 people and produces chilled and frozen quiches, tarts and frittatas for the retail and food service markets on a nationwide basis.

Entering the Grocer 'Fast 50 list" in 2016, Edgmond Foods is ranked 37th in terms of the fastest growing food and drink manufacturers in the UK.

To underpin this growth and to form a solid platform for the future, Edgmond Foods needed to create a new larger manufacturing facility in order to meet their increasing production demands.

When considering the requirements for the new manufacturing facility the company needed sufficient space in which to meet their growing production demands with a location close to their existing plant.

However of equal importance to these base requirements was the requirement to source preparation, cooking and refrigeration plant & equipment that met the highest standards with respect to current technology and performance.

'Gaining the highest levels of performance and providing system contingency were key requirements with respect to the new production facility', commented Dave Blinkhorn of Green Cooling, 'continuing, ' the client's brief highlighted that the design should combine practical value with the highest level of specification'.

With this in mind Edgmond Foods turned to the efficient and environmentally focused refrigeration specialists Green Cooling to design & deliver the refrigeration elements of the project.

Green Cooling were given a brief to design, specify and install a complete refrigeration system to satisfy the increased levels of production for the new plant, within budget and delivering the highest levels of operational performance and efficiency.

Project Summary

The project demanded a large amount of design input in order to produce a food manufacturing refrigeration system and equipment specification schedule that provided the production facility with a robust and efficient refrigeration package.

Over a six month period from mid 2016 the refrigeration design was developed by Green Cooling's specification team and an equipment schedule produced, which then led to a three month installation and commissioning period, culminating in the new facility moving into the operational production stage in January of 2017.

The production process comprised of six main refrigeration elements ranging from incoming product storage to intermediate blast chilling & freezing through to despatch chilled and frozen storage.

Each key refrigeration element within the production process was dealt with on an individual basis in terms of developing a specification, which satisfied the demands of that zone/element of the application.

These key requirements were factored into the system design with an overall focus on delivering the highest levels of operational performance.

Each zone of the production plant is serviced via a Green Cooling multi-compressor packaged refrigeration unit, these units are designed to deliver both efficient operation with contingency in order to provide the most practical and flexible system design.

The final installed refrigeration system comprises of multiple cold storage areas, purpose designed high capacity blast chiller & freezing units along with large capacity holding chillers & freezers with an overall refrigeration capacity in excess of 340kW.

To support the Production plants Hot Water requirement the system incorporates Green Cooling's Thermal Hub System.

This system recycles the waste heat from refrigeration, instead of the energy being rejected to atmosphere, as would be the case with a standard refrigeration system, the Green Cooling Thermal Hub converts the waste energy from the refrigeration process into valuable low carbon hot water for production use.

Equipment & Services

GC Centralised Packaged Refrigeration Units (Multi Compressor)
1 x 75 kW, providing medium temperature cold storage duty
1 x 120 kW, providing low temperature blast chilling duty
1 x 120kW, delivering low temperature blast chilling duty
1 x 25 kW, delivering low temperature cold storage duty

GC Refrigeration Waste Heat Recycling System
1 x 1,500 litre Thermal Hub/Hot Water Integration unit

High Capacity Blast Chilling/Freezing Units
10 x 600kg duty

Holding/Despatch Freezer Cold Store
1 x 15kW, twin evaporator frozen storage system

Delivery/Pre Production Freezer Cold Store
1 x 9.5kW, twin evaporator frozen storage system

Delivery/Production Chilled Cold Rooms
7 x 11kW, single evaporator chilled storage systems

Remote access & monitoring
1 x Infrared multi channel refrigerant leak detection system
1 x Remote access service & system monitoring package

The system was provided with a complete Green Cooling design and installation service covering refrigeration, mechanical, electrical, and control systems.

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