



TURNKEY INSTALLATION OF HFO-BASED CENTRALISED COOLING SYSTEM TO NEW MILK PROCESSING FACILITY.



THE CHALLENGE

ICS Cool Energy, an international market leader specialising in complete temperature control solutions for manufacturing process and facilities applications, announced today it completed a turnkey installation of a new process cooling system at a UK's leading dairy processing plant. The new centralised installation will deliver 1.2MW of process cooling to serve two production areas and is based on three ICS Cool Energy Imperium chillers with a near zero global warming potential (GWP) R-1234ze refrigerant.

The dairy plant was investing to expand its manufacturing plant and increase their processing capacity and capabilities. As part of the project, they decided to replace the existing chillers and install a brand new centralised cooling system that would cover the demand for the current and new production areas. To assess the energy consumption requirements, heat loads and present a high performance, environmentally friendly solution, the dairy plant reached out to ICS Cool Energy.

Major Dairy Processing Plant Moves Away from Ammonia-based Cooling with Bespoke System from ICS Cool Energy

THE SOLUTION

"We conducted a thorough analysis of the customer's usage for the existing plant and looked at the envisaged utilisation of the new production plant to ensure a workable system," said Ben Young, Major Account Manager. "While the customer initially leant towards an ammonia-based system, which was traditionally used on site in the past, they changed their mind after we presented the benefits of a HFO-refrigerant based system."

"Many industries and businesses are favouring a HFO like the R1234ze over ammonia due to its non-toxic nature. The HFO also offers very low GWP value of less than one," said Ben Young. "By utilising the latest technology innovations, process cooling systems with HFO refrigerants can create a safer, more trouble free, energy efficient option with equally low environmental impact as ammonia."

The ICS Cool Energy team designed the centralised cooling system around the three Imperium air-cooled screw chillers. The setup is capable of delivering a total cooling capacity of 1.2 MW to fulfil the production requirements for 1°C supply water temperature and includes additional standby capacity. The standby capacity was critical for the customer, as being a leading dairy manufacturer in the UK they needed to ensure the continuity of production.



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THE RESULT

"It proved to be a very rewarding project," said Ben Young. "Our team took care of the entire installation process, which included mechanical installation, structural engineering works, an additional cooling tower with contract lift onto full commissioning and training. Additionally, we installed a temporary, cooling system from our hire fleet, to ensure we kept our customer's operations running while we continued the works on the new plant."

The chiller units feature ultra-low GWP, hydrofluoroolefin (HFO) R-1234ze refrigerant, which in chillers can outperform ammonia even by 25% according to the energy efficiency ratio (EER) analysis. R-1234ze is mildly flammable and non-corrosive in comparison to ammonia, which is toxic and, if leaked, can pose serious risks to human health and food and beverage operations. Additionally, the HFO-based cooling systems are more cost efficient thanks to standard design, production and components that allow for routine maintenance. Ammonia requires expensive stainless-steel piping to withstand its corrosive properties, additional maintenance and special devices mounted to monitor the safety of the system.

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