

STAR TREATMENT FOR ARLA FOODS' DAIRY

Location:	West Yorkshire
Equipment:	5 x screw compressors 3 x evaporative condensers 2 x falling film evaporator 3 x PHE evaporators 6 x room coolers 11 x inverter driven secondary pumps 1 x PLC control system
Refrigerant:	Ammonia
Capacity	5MW
Temperature	- 8°C glycol +0.7°C ice water +6°C chilled water

Star Refrigeration has installed a high efficiency multi-temperature cooling plant at Arla Foods in West Yorkshire.

The project by industrial cooling and heating specialist Star formed part of Arla's third phase of investment in additional production facilities at its flagship dairy in Stourton, Leeds. Having been involved in refrigeration works the previous construction phases, Star was responsible for designing a high efficiency cooling system to allow Arla to manufacture cottage cheese for the first time in the UK.

With an overriding commitment to reduce energy consumption and CO2 emissions, Arla was looking for an environmentally conscious cooling solution.

Star designed, supplied and installed a state-of-the-art central ammonia refrigeration plant, with energy saving equipment and control.

The plant has a 5MW total cooling demand and operates at three separate temperature levels. A chilled water circuit provides cooling for the building's heating, ventilation and air conditioning (HVAC) systems. Ice water is circulated to meet various process cooling demands within the production facility. Sub-zero glycol also provides cooling for a 2 degrees Celsius cold store and a blast chilling tunnel.



Star's high efficiency cooling system at Arla, Stourton

Star Refrigeration's Group Sales and Marketing Director Rob Lamb says: "Arla's main focus was on an energy efficient, environmentally-sound cooling solution and we worked in close partnership on the design of the system. We opted for naturally occurring ammonia refrigerant because it has zero global warming potential and is non-ozone depleting."

He adds: "The installation of a central plant with three different cooling temperatures for process,

HVAC and cold storage requirements ensured that refrigeration for each demand was achieved at maximum efficiency.”

For more information, phone Star Refrigeration on 0141 638 7916, email star@star-ref.co.uk or visit www.star-ref.co.uk

The central ammonia system consists of five screw compressors, three featuring inverter drives to optimise part load efficiency. Heat is rejected via three evaporative condensers with inverter driven fans that are located above the plant on the roof of the building. Other energy saving features include inverter controls for the glycol/water circulation pumps, floating head pressure control and floating suction pressure control.

Star’s Telstar computerised control system constantly monitors and adjusts operating conditions to optimise efficiency. Star also provides an online 24-hour a day fault monitoring service.

As well as supplying all of the plant room equipment, Star was responsible for the installation of a 1.5MW cooling tower for high temperature process water cooling, a number of coldstore coolers and associated pipework.

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Case Study:

Arla Foods