



Eskimo Ice Factory

Daikin ZEAS adds chill to Eskimo's new Ice Age

Four Daikin ZEAS condensing units have solved a sticky problem for ice cube maker, Eskimo Ice. The 15hp units at Eskimo's Crawley factory in the UK provide cooling to the blast chillers that take newly-made cubes down to -15°C , ensuring that they stay dry and don't stick together during the automated packing process.

The Daikin units were installed after it became clear the chilling system in use since the factory's opening in 2011 was insufficient when the factory's output increased from 50 tons to almost 200 tons of ice per day.

The factory, close to Gatwick Airport, supplies cubes and crushed ice to the UK London market, and also to customers as far afield as Ireland and Belgium.

Eskimo's ammonia refrigerant ice machine produces 750kg of cubes every five minutes. The fresh cubes are dropped into storage bins in the rake room, where mechanical rakes level the load and move cubes towards the outlets and to the packing machines.

Owner Gavin Marks says: "We were having increasing problems with cubes sticking together and blocking the conveyors and machines. This was because the cubes are wet when released from the ice machine. If the film of water is not quickly dealt with by blast chilling it tends to refreeze, 'gluing' the cubes together. Wet cubes are also unsuitable for crushed ice production.

"Since installing the Daikin ZEAS units, those problems are behind us. The cubes and crushed ice slide smoothly through the process."

Billed as Europe's most modern ice factory, Eskimo's Crawley plant has capacity to produce up to 1,400 tons a week, with its packing machines running up to 16 hours a day, seven days a week.

It's a far cry from the company's origins in a Battersea railway arch 20 years ago, when up to three tons of ice a day were packed by hand. Eskimo Ice continued to make ice in London until the Crawley factory opened, and still maintains a depot at New Covent Garden, which acts as a base for London local deliveries.

With the issue of wet cubes threatening his existing and potential business, Gavin Marks called in his refrigeration consultants, Royale Refrigeration, also based in the south-east, to find possible solutions.

Gavin Marks says: “The Daikin solution was the most attractive, and the ZEAS machines are a trim modern alternative to the usual big condensing units. The scroll compressors in each unit modulate according to demand and offer greater operating efficiencies than other options in the market.”

Nick Sheppard, project manager at Royale Refrigeration, says: “We offered the customer a choice of conventional condensing units or Daikin ZEAS units. Keen to keep his electricity costs in check, the customer opted for the significant long-term cost savings of ZEAS, despite a higher upfront cost.

“From our point of view, ZEAS units are much easier to install – it’s virtually just a matter of connecting them up and switching them on.”

ZEAS is a packaged system, based on Daikin’s highly energy-efficient VRV technology, and is well-suited to restricted spaces and noise-sensitive locations. The range includes nine sizes from 5hp to 40hp, and offers a coefficient of performance (COP) of up to 3.0.

ZEAS caters for medium temperature applications of 10°C to -20°C and low temperature applications down to -45°C. It is designed for situations such as supermarkets, convenience stores, restaurants and food processing plants where loads fluctuate and energy requirements are high.

The inverter control in the ZEAS system gradually adjusts power to the scroll compressors to suit the refrigeration capacity needed, thus avoiding voltage peaks so it reduces energy consumption by 30% compared with traditional on/off controls. The inverter also shortens start-up time, to achieve the desired temperature faster.

ZEAS uses R-410A refrigerant, which has a larger heat transportation capacity than other refrigerants, allowing refrigerant delivery via more compact components and smaller piping sizes. As a result, ZEAS delivers the same capacity as systems with old-sized fittings, while piping costs are reduced by more than 50%. Moreover, R-410A already complies with the new F-Gas legislation and is therefore a sound choice for the future.



Eskimo’s Crawley factory



Daikin ZEAS units