



## Helping to keep things cool in Burton Latimer

How to maintain the correct temperature with a PHE

Case story



Morrisons' regional distribution centre in Burton Latimer provides chilled storage for fresh produce, meat and fish.

Now one of the UK's biggest supermarkets, Morrisons originally started life in 1899 as a simple market stall selling dairy produce and opened its first self-service store in Bradford in northern England in 1958. In 1961, the company bought an old cinema in the same town and converted it into a supermarket selling fresh meat, green-grocery and other grocery provisions.

Today, Morrisons operates 360 stores across the UK and caters to the needs of no less than 10 million customers every week. A large part of the company's success has been its concentration on quality and freshness.

They say, "Our aim is to provide all our customers with the very best value for money wherever they live. To achieve this, we manage almost every aspect of our commercial operation in-house, including fresh fruit and vegetables, fresh food, meat processing and transport.

"Fresh produce is delivered into our temperature controlled warehouses and packing plants in the UK and abroad, ready for onward despatch to our stores nationwide and we have a purpose built fresh food factory, producing pizzas, pies, cooked meats and sausages, as well as packing cheese and bacon."

### Fast facts:

- Morrisons is one of the largest UK supermarket chains with 370 stores
- It serves 10 million customers every week
- It employs 114,000 people
- The Burton Latimer chill distribution depot covers 62,500 sq. metres
- Two MK15-BWFG semi-welded Plate heat Exchangers help maintain the depot at a constant +2°C.

“We also own two meat processing facilities where beef, pork and lamb are prepared and supplied direct to the butchers in our stores, as well as operating and maintaining our own transport fleet.”

To ensure that all of this produce arrives at its stores fresh, Morrisons has established a chain of giant distribution depots at key locations across the UK. The latest of these is located at Burton Latimer in the Midlands area of England.

It is a chill distribution centre covering 62,500 square metres that provides chilled storage for fresh produce, meat and fish prior to delivery to individual Morrisons’ stores in the south Midlands and beyond.

Maintaining the internal temperature of the huge building at a constant +20°C is the job of two Alfa Laval MK15-BWFGR semi-welded plate heat exchangers. The two Alfa Laval PHEs handle a total duty of 1500 kW and are part of a central cooling system that feeds unit coolers to provide direct cooling to the main produce storage area and subsidiary sections for meat and fish. Designed and installed by Alfa Laval business partner, J&E Hall, the cooling system uses glycol and ammonia and is fitted with variable speed drives to operate in cascade fashion for maximum efficiency.

Glycol enters the Alfa Laval exchangers at -40°C and is cooled to -80°C by ammonia which is continuously circulating through the exchangers at -12°C. A top up vessel installed above the exchangers maintains the ammonia at the correct level. From the exchangers, the glycol is pumped to the unit coolers which provide direct cooling in each of the key storage areas.

According to Will Harrison, J&E Hall’s Project Engineer, “We looked at a number of options before deciding on the semi-welded plate heat exchangers. One option was to go



Two plate heat exchangers from Alfa Laval maintain the internal temperature in the produce depot at a constant +2°C.

with an off-the-shelf chiller package. This would have been significantly cheaper in terms of capital installation than the PHE alternative but, over the longer term, the whole life cost would have been much higher.”

“Once we factored in the anticipated life of the installation, the much greater energy efficiency the PHEs provide and their reduced service and maintenance costs, there really was only one choice. And we opted for Alfa Laval units because of their proven performance and the excellence of their after sales service.”

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#### How to contact Alfa Laval

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