



Anything is possible

As sponsor of the Trainee of the Year Award, Hawco is proud to encourage engineers to develop their skills at every stage of their career. For example, when the company's senior technical engineer, *Mervin Chumun*, was asked to specify a 130kW blast freezer for a major project in West London, he jumped at the chance.

What does it take to design a blast freezer capable of handling thousands of pre-prepared airline meals every day? As Hawco's Mervin Chumun discovered, it requires perseverance, collaboration and plenty of heat load calculations – plus a little help from your friends.

As you stand outside DSI Foods in West London, you can hear the planes taking off from Heathrow airport. Every day, thousands of passengers on those planes will be enjoying delicious in-flight meals produced by the chefs at DSI.

Every eight hours, 7,300 individually pre-packed meals are cooked, chilled and frozen to seal in the taste and texture of every ingredient. Once frozen, they are transported the short distance to the airport and loaded onto planes, ready to be enjoyed by people flying all over the world.

In early 2018, DSI Foods asked RS Refrigeration Services in Hampshire to help increase their production capacity, including two walk-in blast chillers and a large blast freezer measuring 11 metres long. The system design began under the watchful eye of project director, Dave Drabble. "The requirements were relatively straightforward – albeit on a large scale," he says. "We were delighted that RS were selected by DSI based on our years of experience and established reputation within the industry."

Blast freezing is all about air flow

When Mervin Chumun first discussed the project with Mr Drabble, he was immediately intrigued. A typical commercial cold room needs an evaporator with a cooling capacity up to 25kW. Here was the opportunity to get

involved in something much larger and more interesting.

"Blast freezing is all about air flow," explains Mr Chumun. "You need to make sure that the whole area is blasted, whether you're chilling or freezing. Even though this project had a comparatively small room, the duty needed to get the job done was huge."

The first two blast chillers had to bring the temperature of the food down from 80°C to 5°C in just four hours while the blast freezer needed to go all the way down to -18°C within a further four hours. However, the calculations were made more complex with a new trolley of hot food being added to the first chiller every hour while another trolley of chilled or frozen food was removed.

A series of other factors also had to be considered. This included the type and amount of food, packaging, number of trollies and their configuration and the physical size of each room. Mr Chumun started work on the specification of the three coolers, having been provided the design requirements set by RS Refrigeration, using the Mistral software package to generate the necessary heat load calculations.

Trusted advice from LU-VE

Hawco has been a LU-VE distributor for over 25 years. For this project, there were only two or three options capable of achieving the significant duty within such a restricted space.

As Mr Chumun explains: "I had not long returned from a tour of the LU-VE factory in Italy where I saw the size of the equipment they are producing on a daily rate. The scale of the equipment was unbelievable. It was clear what could be done."



Hawco's Mervin Chumun (left) with RS Refrigeration senior technical engineer Mark Taylor.

He turned to LU-VE's UK general manager Steve Taliadoros for advice, who was happy to share some of his experience of similar projects. Mr Chumun says: "I've never done a project like this on such a grand scale as an engineer. Steve could highlight some of the things that I needed to consider and give me some honest answers. I learned a lot from him."

"I think it's really important for everyone in the industry to pass on the knowledge we've acquired in the past," says Mr Taliadoros, "and it's always a pleasure to support an engineer like Mervin as he takes on a new challenge like this."

Getting the project 'over the line'

The optimum choice for DSI Foods was a system featuring three LU-VE Fast Freeze coolers; two 80kW blast chillers and a 130kW 6-fan blast freezer, which weighed 1 tonne.

Normally, a ceiling-mounted box-type cooler would be ideal for such a project using very large fans to generate considerable air flow. However, a floor-mounted option was chosen as it could be installed more quickly and easily without the addition of a reinforced steel frame. The chosen models also needed to fit into a very tight space, with just 50mm to spare above the blast freezer.

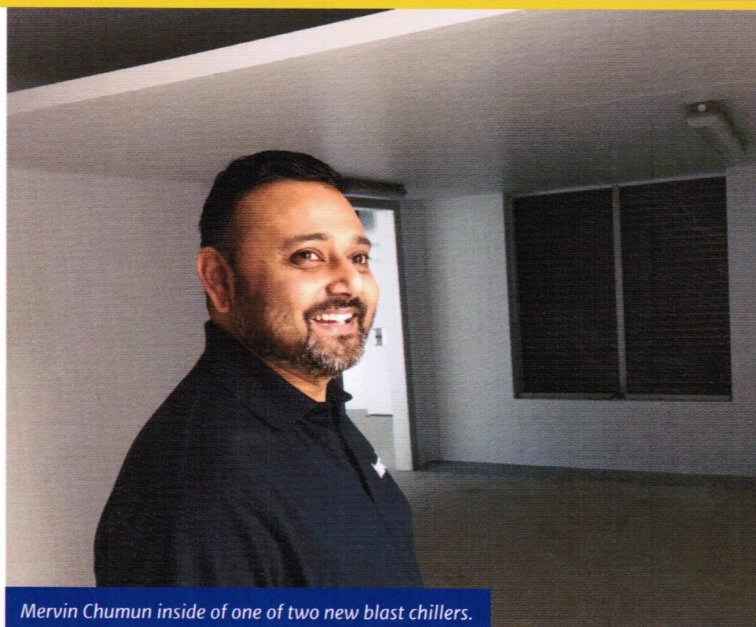
It took nine more heat load revisions to agree the final specification. As each option was presented to DSI Foods, a change in the space or duty was made making it possible to increase the overall load or fit in more packaged meals at a time. But with each new revision, a new set of calculations were required. Even an additional 400mm makes a major difference to the overall load when multiplied along the length of an 11-metre room.

Ultimately, the success of this project lies in the collaboration between everyone involved. As Dave Drabble says, "The RS team of engineers have enjoyed working with DSI and Hawco - and we look forward to working on future projects of this calibre."

For Mervin Chumun, getting the project 'over the line' was both a professional and personal challenge. As he says, "It's not just about the

technical side of the project but you need to talk to the right people to get the right commercial outcome too.

"We have got some great suppliers, some great people at Hawco and we can go in and do these big projects. Why not go for it?" He concludes, "In the end, the whole puzzle all fitted together perfectly. It just comes down to whether you want to do it."



Mervin Chumun inside of one of two new blast chillers.

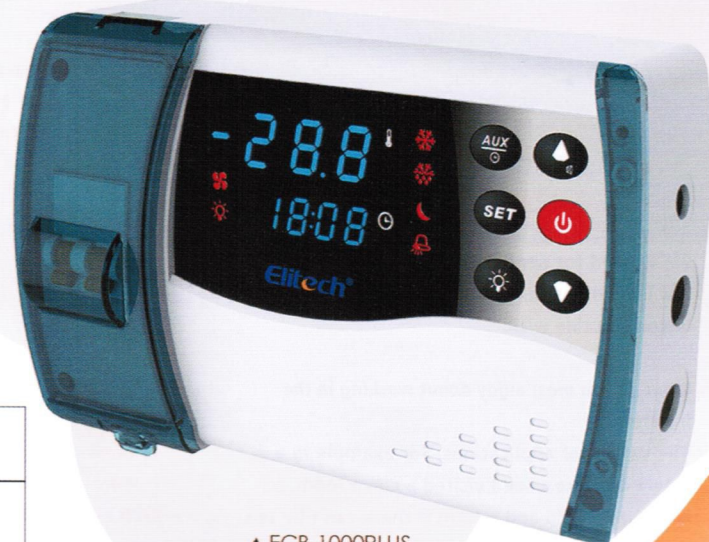
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