



Cold comfort

In this month's article from the Automated Material Handling Systems Association (AMHSA), Matt Hatson, Business Solutions Sales Director for Dematic Northern Europe, looks at the challenge of reducing costs in the temperature-controlled distribution sector.

According to the British Frozen Food Federation's 'Frozen Food Report II', the frozen food market in the UK is performing well, with the retail sector valued at £5.8 billion and its sister market, the foodservice sector, valued at a further £2.3 billion. In addition, recent retail figures have shown strong growth in frozen food product categories, which now offer consumers far greater choice. Categories such as frozen confectionery and ready meals have grown significantly in recent times. The demand for gourmet fast food continues to grow in popularity and UK operators in the foodservice sector have been quick to adapt to this trend, with frozen pre-prepared food helping to meet rising levels of demand. As consumers continue to seek out great-tasting convenience foods that can be prepared and eaten quickly, they now also expect more luxurious fast-food options on their menus. The result has been proliferation in the total number of frozen food lines on offer, which in turn has led to changes in the frozen food distribution business. More lines equates to more storage locations and increased complexity in order picking. These changes have been taking place at a time of rising costs for land, labour and energy.



Storage density

Much to militate against these rising costs can be achieved by increasing the levels of automation within the temperature-controlled logistics industry. Let us look at automated unit load storage. Automated storage and retrieval systems – ASRS, also known as stacker crane systems – are able to work at much greater heights than conventional forklift trucks. With a high-bay configuration, a smaller building footprint is required. In fact, the footprint is typically only 25% of that of a traditional warehouse.

requiring up to less than a third of the space compared to those in conventional pallet stores, an ASRS significantly reduces the total floor space needed to store a certain number of pallets; this reduction can be 25% or more, depending on the height of the system. Also, an ASRS can work double- or even multi-deep, thus using even less space than conventional lift truck systems.

This storage density is very important when it comes to cold storage, as the lower cubic volume to be refrigerated results in lower energy consumption. With energy costs ever increasing, this represents an important cost saving. The smaller surface area of ASRS cold stores also reduces the impact of thermal transfer through the walls and roof area, further reducing energy

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consumption.

The air-tightness of an insulated envelope – that is, the cold store enclosed by its insulated walls, ceiling and doors – has a direct impact on energy consumption. The single largest load on cold stores is usually caused by warm air getting in through open doors; this typically accounts for 30% of the total heat gain by a cold store. Within an ASRS warehouse having no need for large doors to be constantly opening and closing for forklift access, air-tightness is improved and so energy consumption is further reduced.

The human factor

With all pallet movements within an ASRS cold store being handled automatically, operational staff are not required to work in the harsh conditions of the cold store or freezer. Significantly less manpower is required in an automated cold store than a manual one. Employee turnover, which is typically higher in cold stores than in conventional warehousing, will also be reduced. Other logistical duties – such as stock put-away and retrieval, order fulfilment, load consolidation and shipping – can take place in ambient temperatures. As staff working in freezers are required to take regular breaks from working in sub-zero conditions, the use of ASRS increases labour productivity, further reducing operating costs. With no operational staff permitted within the ASRS, safety issues associated with the use of manually operated forklifts and pallet trucks are also eliminated within the storage area.

Picking accuracy

ASRS solutions bring with them accurate, computer control of all the inventory locations within the cold store. This real-time inventory accuracy is an essential feature for third party logistics (3PL) cold storage providers. Accurate inventory location management of an ASRS can ensure first-in, first-out (FIFO) inventory rotation. An ASRS can also simply 'lock in' any quarantined inventory, which can be a useful safety feature in the food supply chain. As an ASRS solution delivers error-free accuracy, it ensures a high level of customer service. Most automated systems typically include in-line automated weigh scales that will verify the weight of loads, thereby capturing any errors and enabling pick accuracy to be enhanced.

Tax breaks

A further interesting point concerns tax. The construction of an ASRS building can include pallet racking that supports the building structure. This 'clad rack' type of building is quite different to conventional pallet racking, which is freestanding within a traditional warehouse. The 'clad rack' structure may

have tax advantages, as it is possible that it can be depreciated as machinery, within a more favorable tax regime.

Dematic has implemented more than 4,500 integrated systems for a customer base that includes small, medium and large companies doing business in a variety of market sectors.

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