



# INTRALOGISTICS Magazine

Knowledge and Excellence in Intralogistics



## ASSOCIATION REVIEW

We take a look at 2016 and how the associations got on

## STOROPACK

Taking a look at storopack's 2016 success story

## ALL4PACK

Looking back at this years fantastic show in Paris



## Up, up and away

*In this month's article in the series from members of the Automated Material Handling Systems Association (AMHSA), Simon Musgrave, Sales Director of Nerak Wiese Ltd, describes the options available for vertical lifting in the modern distribution centre.*

**W**hen visiting a new city, it is often said that you should look up. Above eye level you will often find much of interest that you would otherwise miss – architectural features, the beauty of the skyline and the famous blue plaques that link the people of the past with the buildings of the present. The same holds true in the world of distribution centres – today multi-floor mezzanines in DCs are increasingly popular. Hence, demand for vertical elevation is up, but which is the right solution for each application from the diverse options available?

Traditionally, inclined conveyor belts have been used to service these multiple levels of mezzanine space. However, with warehouse space at a premium, this method is widely seen as space-inefficient and more compact solutions are preferred. There are a great many compact elevation solutions to choose from, so here is my synopsis:

Spiral elevators are particularly cost-effective up to lifts of around 4 or 5m. This method is generally very reliable and requires a minimal amount of control. Spiral elevators are available in a variety of configurations and conveyed items can travel through 90° in transit, thus avoiding the need for, and expense of, cross transfers. A wide variety of belt widths are available and recent developments have given spiral elevators the ability to infeed and discharge at several levels.

Designed for point-to-point situations, continuous platform



elevators can cater for a wide variety of tote or box sizes, with the product being kept horizontal throughout the elevation process. These systems have a relatively small footprint, are capable of cost-effective lifts up to 30-40m and are noted for their reliability. Generally the taller the lift, the more cost-effective this solution is.

Single-platform reciprocating hoists consist of one platform that goes up and down, with as many infeed and discharge points as required. This is a cost-effective solution for throughputs under about 500 units per hour. Various models are available on the market including cantilevered, single-belt, twin-belt and counterbalanced types – this latter option reduces the power consumption, thereby reducing the energy cost.

A versatile option is the multi-carriage reciprocating hoist. This lift consists of a platform that goes up and down upon which are mounted either two or four conveyors, positioned above each other. This layout means that you can replenish empty totes at the same time as collecting full ones, dramatically increasing

operational efficiency. Recent developments allow the carriages to operate independently of each other, so the left one could service one floor and the right another. The additional benefit here is improved redundancy – if there is a problem on one hoist, the other will still operate.

Paternosters – also known as circulating conveyors, fork conveyors or orbiters – allow the product to recirculate, making it ideal for multi-infeed, multi-discharge applications with inter-floor traffic. With this solution, the infeed is on the upstroke and discharge is on the downstroke, so all infeeds need to be on one side and all discharge points need to be on the other. If a discharge lane is blocked, the product recirculates and is presented to the discharge point again on the next cycle. There is a wide range of models on the market, including lifts designed for specific item sizes and others designed to take a multitude of different loads and sizes.

There is also a plethora of pallet lifts available on the market today, ranging from manual lifts to fully automated versions. Of the automated types, the two most popular options tend to be a mast with a cantilevered carriage and a freestanding model with belts or chains on the side of the carriage. The cantilevered pallet lift needs to be braced to the warehouse structure for stability and is capable of lifting loads of up to 2.5 tonnes. A counterbalance aids power efficiency and this type is capable of throughputs of 70 units/hour. It can also be designed to take two pallets at a time; if these two pallets are loaded side-by-side, instead of one behind the other, the throughput can be increased to over 100 pallets/hour. The freestanding type of pallet lift is self-supporting, generally with the hoist belts or chains on both sides of the carriage and they too are normally fitted with energy-saving counterweights. Available in S- and C-shape configurations, these lifts generally run faster than the cantilevered single-mast version but are usually designed to take lighter loads – typically with pallet weights up to 600kg, although some models can lift in excess of a tonne.

As one would expect, each individual application would be best served by a particular type of vertical lift and choosing the optimal elevation solution can boost productivity and minimise energy costs. If you need advice on the right solution, do not hesitate to contact an AMHSA member.

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