An advance in glass bottle transportation

The patented Smartstak system has set new standards in glass transportation and made a substantial environmental contribution.

Loadhog, the employee-owned, UK-based manufacturer of returnable packaging, launched Smartstak in the early 2000s after realising that pallet instability, and the resultant breakages, was a major issue when transporting glass bottles.

Smartstak is now used by glass bottle manufacturers, brewers and soft drink manufacturers in the UK and Europe. Loadhog is confident that the system will be recognised around the globe as an industry standard and is currently talking positively to manufacturers worldwide, including in the USA.

The Smartstak system comprises three components – the Smartpad, Smartframe and Smartcap – each manufactured by Engel injection moulding machines using recycled polypropylene in Loadhog’s Yorkshire facility, which is ‘best in class’ for environmental efficiency. Any product returned as damaged is reground and utilised in the manufacture of new product.

The plastic Smartpad, with a patented wave-edged profile, has a major impact on glass pallets stability by encouraging bottles, on short or tall packs, to ‘migrate’ to the centre of the pad during the vibration caused by automated handling and transit.

Its wave edge construction also makes the pad stronger and prolongs its life, typically 100+ trips. The reusable, recyclable, hygienic and directly interchangeable pad also forms a barrier when a pallet is subject to drop and impact forces. The design also facilitates efficiency within the filler, improves the safety of pack movement pre-strapping and reduces bottle scuffing.

The Smartframe is a robust ‘live’ top frame constructed from glass-filled nylon and spring-loaded to enhance and maintain increased comparative pack tension over time. Savings in packaging are also generated by less strapping and shrouding, which have traditionally been disposed of in landfill.

The latest element to be added to the Smartstak concept is the Smartcap – a universal plastic reusable capping tray.

When used in conjunction with the Smartpad, the Smartcap creates another complete, intelligent glass bottle packaging system which eliminates the cardboard capping trays that are used predominantly in Europe.

The Smartcap reduces the cost of one-trip, disposable packaging and associated CO2 emissions. It improves hygiene and wet weather performance by providing a waterproof barrier, with no spoiled pallets to be washed and handled in the same way as Smartpad.

With an active hinge feature, the Smartcap requires no assembly, thereby eliminating manual labour or construction equipment costs, which are associated with traditional cardboard trays. It retains the top layer of bottles,

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holds the necks securely in place and flexes during shrouding to protect bottles.

Additional benefits of the reusable Smartcaps, rather than cardboard capping trays, are that inventory can be reduced; fewer products and less storage space are required and there are also storage and stock cost savings.

For hygiene Smartpads and Smartcaps are washed after each trip in the wash plant at Loadhog’s Sheffield base.

The Sheffield washplant was the first in the UK not to use detergents, achieving its standards using environmentally friendly methodology.

The reverse osmosis water treatment removes contamination and residue on the pad or cap’s surface and the UV light chamber sanitises them, ensuring they conform to the glass industry’s hygiene requirements after every trip.

A second washplant has been installed in Pegoes, Portugal to service Loadhog’s Iberian Smartstak customers with the identical wash process and service.

The company’s pool management system in both Sheffield and Pegoes includes the collection of dirty components, the washing and redistribution of clean ones, all facilitated by accurate data on their location. This minimises working capital in the supply chain and provides a 24-hour replenishment service.

I believe Smartstak demonstrates that innovation can be introduced in mature industries, resulting in increased employment and wealth, while also improving the performance and competitiveness within the glass bottle manufacturing industry. Smartstak’s increased product range with Smartpad and Smartcap demonstrates that cardboard can be eliminated completely from the palletisation process. With Smartstak, this industry could reach zero transportation breakages.

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