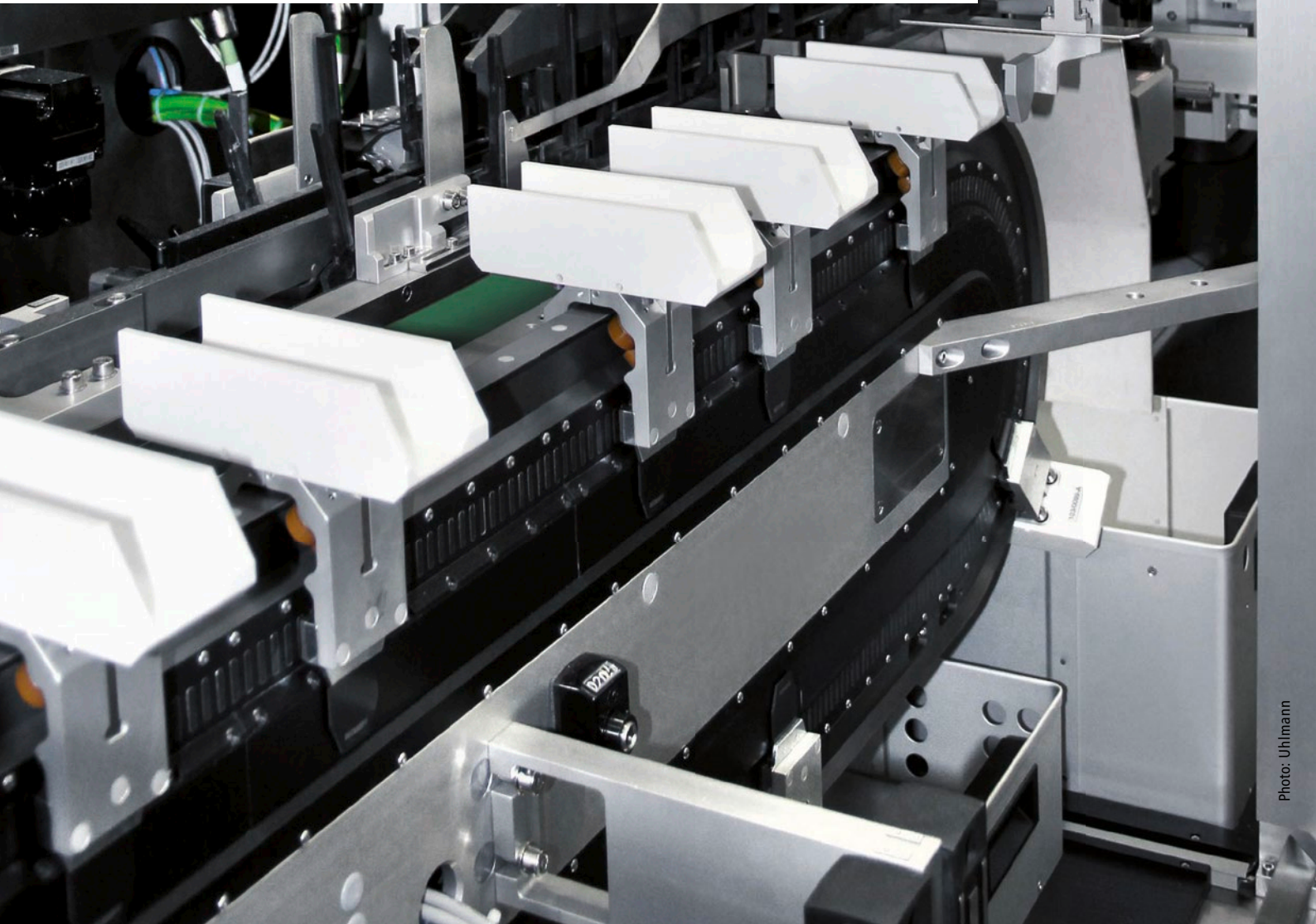


Innovative bottle cartoner for the pharma industry

XTS: individual motion profiles increase production efficiency



Linear transport systems are currently the topic of lively discussion in the packaging industry. Correspondingly keen was the interest when Uhlmann made its first presentation of a pharmaceutical prototype incorporating this new technology at FachPack 2015 in Nuremberg. In the case of the exhibited Cartoner C 2155 for the packaging of bottles, the product transport no longer uses an intermittent motion belt drive with a set pitch. Instead, the XTS transport system operates with separate “movers”, each with a product tray, which travel along a guide rail, resulting in a 25 percent increase of the machine output with reduced number of rejects.

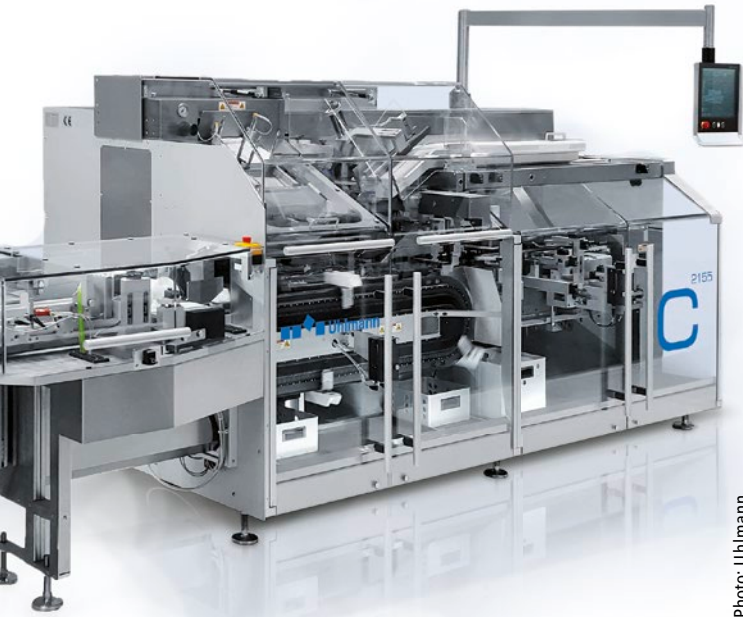


Photo: Uhlmann

The flow of the movers is controlled by “mobile” magnetic fields. The entire length of the transport section is fitted with individually switchable magnetic coils, while the movers have permanent magnets. As the coils are driven independently, the movement of each individual mover – and thus of each separate product – can be controlled irrespective of the other products. “The use of XTS rules out the necessity to choose between intermittent or continuous motion transportation. Every product has its own motion profile instead. Acceleration and deceleration phases, such as fast transport of the empty movers, reduced speed during manual feeding, or a short stop when inserting pack enclosures, are possible – to optimally suit the product and the process. This brings about new levels of freedom in packaging machines, and processes can be decoupled”, says Thomas Aumann, Design Engineer Development and XTS Project Manager at Uhlmann Pac-Systeme GmbH & Co. KG, explaining the operating principle.

On the whole, the trend in virtually all branches of industry is toward mechatronic or electronic systems. The packaging industry is also currently seeking alternatives to conventional products transport using mechanical belts and

chains. The Uhlmann prototype clearly demonstrates that the XTS system is a sustainable option. “The linear transport system allows good visibility, is easily accessible, and is straightforward to clean with its closed surfaces. These factors mean it is ideal for use in the pharmaceutical sector, especially when it comes to the packaging of liquids. Fast line clearance and GMP-compliant design are particularly important here”, explains Jürgen Walser, Global Product Manager responsible for the innovative Uhlmann project. “Even more interesting, however, is the impact the individual motion profile has on the output. The prototype eliminates significantly fewer products and attains distinctly higher line efficiency – and that at a 25 percent higher machine output.” The event-driven motion of the movers makes this possible. The product can wait at the product loading point for a perfect carton and does not have to be rejected because the product transport cycle must continue. The flexible speed and accurate positioning allow precision insertion of pack enclosures. Among other factors, the low maintenance requirements have a positive influence on the overall equipment effectiveness (OEE): the retightening or replacement of belts and chains is no longer necessary. A plug system permits straightforward and tool-free exchange of the movers. On account of the free-motion principle and the high dynamics of the movers, improved performance is achieved: accelerations of up to 100 m/s² and speeds of up to 4 m/s can be attained.

The reactions of the FachPack visitors were correspondingly positive. “One remark heard: ‘A topic discussed by everyone and Uhlmann has implemented it.’ We are very pleased that our innovative strength is so obvious in this case. After all, we have worked hard on this”, says Jürgen Walser. Uhlmann started working back in 2011 on development of the XTS transport system in cooperation with the automation and drive technology specialist company Beckhoff. The Uhlmann team was primarily responsible for the design of the guide rail and the movers with the product trays. Extensive tests were carried out and, finally, patent applications submitted. Uhlmann is currently offering pilot customers the opportunity to test the cartoner in regular operation. Uhlmann sees the application of the XTS transport system in the cartoner as an initial step. Jürgen Walser explains: “This technology offers diverse opportunities to solve the widest range of packaging tasks. The outcome of the cooperation between Beckhoff and Uhlmann clearly shows that we are in the forefront when it comes to the development of mechatronic solutions for pharmaceutical packaging machines,” Jürgen Walser concluded.

Further information:

www.uhlmann.de/en.html

www.beckhoff.com/xts