Major advance in precision ware handling

Jarmo Kammonen discusses how the co-ordinated efforts of equipment suppliers led to the creation of a lehr loading solution for a glass container producer operating a high performance quad gob NIS machine.

Hot end ware handling is a production stage where there is much to lose. The recently formed containers must be transported while still hot and fragile from the cross-conveyor leading from the IS machine to the annealing lehr. If there are problems, otherwise good ware can be damaged or lost but if the transfer is carried out too slowly, the speed and efficiency of the whole production line can be limited.

Today's ware handling technology faces several major challenges. It must be able to keep up with the ever-increasing speeds achievable with modern forming machines. It must also be flexible enough to deal with a wide range of container shapes, some of them quite unusual and artistic. And finally, it must be compatible with different types of lehr, some narrow with high cycle rates and others wider with long pushbars.

FlexStacker from Bucher Emhart Glass is a triple-axis, fully servo-controlled lehr loader that has been specially designed to address these issues. This product has its roots in a real world production challenge. One of Bucher Emhart Glass' clients was using a third-party stacker with a high performance quadruple gob NIS machine. The high speed of the NIS machine had taken the stacker to its very limit and it could no longer transfer the containers produced in its 48 cavities to the lehr at the required speed. Teaming up with Sheppee, the stacker's manufacturer, Bucher Emhart Glass' technicians resolved to find a solution for the customer.

PERFORMANCE IMPROVEMENTS

Once the problem was analysed, the stacker's three-axis servo control was revealed as the main culprit. So the two suppliers decided to team up and create a three-axis stacker using the FlexIS control hardware that features on Bucher Emhart Glass IS machines. Once FlexStacker was developed, it duly replaced the existing stacker and

the happy customer immediately saw a huge performance improvement, with none of the issues encountered previously.

FlexStacker is controlled by a recently developed software package, with a pioneering human interface that incorporates built-in expert knowledge, accessed by a touchscreen on the control unit. This makes the operator's job far easier, both in terms of setup and actual handling. Once the characteristics of the container have been entered, the software automatically generates the optimum motion profile to transfer it accurately from the conveyor to the lehr. This ensures smooth ware handling on every job, as well as freeing up production specialists to focus on other, more important issues. Data for each job is stored by the software and can be reloaded later, or transferred to other FlexStacker units.

The use of FlexIS control hardware ensures FlexStacker delivers the highest possible levels of repeatability and reliability in terms of timing and motion profile. This technology has already proved its worth on other ware handling products in the Bucher Emhart Glass range, such as the servo take out and FlexPusher, both popular and widely installed among the firm's customers.

A STEP FORWARD

Crucially, however, these levels of accuracy have not been achieved at the cost of speed. FlexStacker can operate at up to 24 cycles/min, or belt speeds up to 72m/min. It is compatible with every cross-conveyor available in the market and also fits all available lehr heights and widths. It is now Bucher Emhart Glass' standard ware handling machine.

"FlexStacker represents another big step forward in our quest to improve the speed and efficiency of the entire glass container production line" says Martin Jetter, President of Bucher Emhart Glass. "It started

FlexStacker is a triple-axis, fully servo-controlled lehr loader.

from the recognition that 'a chain is only as strong as its weakest link' – and the weak link, for our client was handling ware produced at NIS speeds. We always want to help our clients solve their production processes if we can and in this case, I'm delighted that the resulting technology will find a much wider application. FlexStacker is a great addition to our product range and I'm confident it will help many glassmakers achieve big improvements in the speed and efficiency of their production lines." ∎

View of the motion profile page.

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