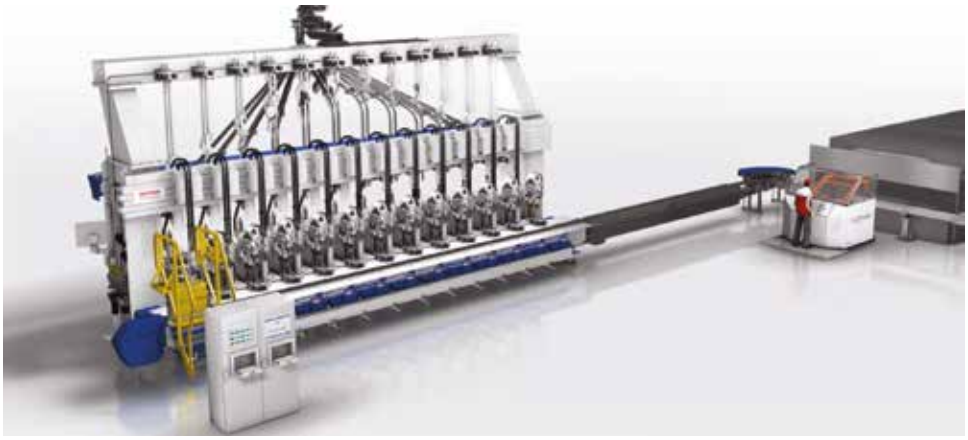
glass WORLDWIDE

Precise and repeatable ware handling

Jarmo Kammonen presents the latest Bucher Emhart Glass ware handling solutions.

Ware handling is about repeatability and reliability. These are the cornerstones proving that full servo technology is the optimum solution for the transport of glass containers from the mould station into the annealing lehr. The Bucher Emhart Glass FlexIS control system is very reliable and provides accurate and repeatable motion profiles for all servo axis elements handling ware transports.



Servo ware handling with FlexPusher, FlexConveyor, servo take out and FlexIS controls.

PRECISE WARE TRANSFER

The Servo Electric Take Out mechanism (SETO) is designed for precise and stable ware transfer, starting with the pickup of containers from the mould station to the conveyor dead plate. This controlled takeout motion is critical for the ware handling process in order to prevent defects.

Container transport can be optimised by adjusting acceleration, speed and deceleration, as well as the drop position over the dead plate. The result is an appropriate balance between takeout motion and increased mould contact time.

Additionally, the servo FlexPusher transports the container on to the machine conveyor belt. The motion profile of the FlexPusher uses all the space available on the dead plate for a smooth sweep out motion and a precise placement of the container on the belt. Precise placement of containers by the pusher reduces losses at the hot end coating tunnel and the ware transfer. The motion profile can be adjusted and optimised during operation at the FlexIS terminal to ensure and secure precise ware handling for many different container shapes. Once a motion profile has been generated and set, it will be repeated with high accuracy and high reliability during the entire production run.

The servo FlexPusher transports containers on to the machine conveyor belt.

NEXT GENERATION WARE TRANSPORT

The latest FlexConveyor from Bucher Emhart Glass is the next generation ware handling transport, with the flexibility to meet different customer needs and improved safety features. Included is a main steel conveyor beam that is designed to meet a range of customer requirements such as better conveyor stiffness, minimised vibration and increased strength.

Dead plate cooling can be regulated with two on/off controls per section to achieve equal air flow of the front and back of containers. Another standard feature is the height adjustable Windbox with a built-in and well-protected bottle air guide. As a result, no mechanical adjustments are needed. The built-in ladder is the latest standard for improved safety when working on the blow side of the IS machine.

The ware transfer moves containers from the machine conveyor to the cross conveyor. The transfer wheel has to cope with spacing variations and still transfer the containers with a consistent spacing onto the cross conveyor. A smooth motion is essential to avoid damage or loss of any containers during transfer. This is fulfilled with a servo motor controlled from the integrated FlexIS Ware Handling Controller WHC.

FlexConveyor represents the next generation in ware handling transport.

CROSS CONVEYOR

The Bucher Emhart Glass cross conveyor has a special cast iron girder, reducing vibrations and minimising distortion caused by the hot environment. It reduces installation service requirements (fluid cooling) and guarantees long equipment life times.

The cross conveyor fits nearly all lehr widths and heights. Both machine conveyor belt and cross conveyor belt are driven with a servo motor connected to the FlexIS Ware Handling Controller WHC.

LEHR LOADING

The three axis FlexStacker is the Bucher Emhart Glass standard for lehr loading. It uses the FlexIS control hardware from the IS machine, including a pioneering human interface with built-in expert knowledge, allowing easy set-up, without the need for 'specialists'.

Capable of handling loading into the lehr at high speed, FlexStacker consists of a three axis mechanical unit located in front of the annealing lehr and a separate remote control cabinet.

RELIABILITY AND REPEATABILITY

When tuning in a ware handling job, technicians spend time and effort optimising such key areas as:

- Choosing the best finger spacing at the pusher, ware transfer and stacker.
- Choosing the best belt advancement at the machine conveyor and cross conveyor.
- Careful selection and design of the pusher fingers, ware transfer fingers and lehr loader fingers to prevent defects.
- Set-up parameters for pusher sweep out and lehr loading to generate the most optimised motion profiles.

A ware handling system that is both reliable and repeatable to maintain performance levels over a long time ensures that all of these efforts are time well spent. Reliability and repeatability can be achieved with servo technology. ■

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