HEYE INTERNATIONAL

responding to hot end, cold end and service requirements

Dead plate cooling

Glass container manufacture is a complex matter, requiring a series of important steps and equipment. In this article, Heye International takes us through the application of its technology, with results including high speed and long lifetime, with constant and reproducible parameters, thus managing the transport of containers successfully.

WARE HANDLING FOR THE BEST RESULTS

In modern glass container manufacture, high production results require good forming techniques. There is also a need for a modern ware handling system to meet increasing speed and precision demands. Heye International provides advanced ware handling solutions to maximise results.

In addition to the assemblies that are assigned to ware handling at first glance, such as pushers, ware transfer and lehr loaders, other components play a role that have a significant influence on the quality of transport. This starts with a modern servo take-out mechanism that positions the containers calmly and precisely above the dead plate.

A prerequisite for high pusher speeds is that the containers are standing properly and consistently tempered on the dead plate. This is guaranteed by a unique dead plate cooling control, which keeps the amount of cooling air and the time interval on a constant and optimal level.

Exactly constant belt speeds for both the machine belt and the cross belt are ensured by the modern Simotion® drive system, in order to be able to achieve synchronization between the other components.

THREE-AXIS SERVO PUSHER

The transport of hot containers benefits significantly from an improved motion profile when implementing Heye International's high speed pusher type 2158. The optimised motion profile results in a parallel pusher movement to the conveyor belt. This recent pusher innovation combines high speed with long lifetime and less parts.

Heye ware transfer

Flexible Heye 2158 three-axis pusher

Many parts are also used in the two axis 2157 series for standard applications. The servo direct drives in particular reduce maintenance requirements. For large plants with many production lines, the modular design renders a quick conversion from right-hand to left-hand operation. In short, this high speed pusher design provides reduced service requirements, minimum wear, long lifetimes, quick article changeovers through easy profile settings and the fast exchange of pusher fingers.

A further advantage is a simplified job change. Mechanical setting is no longer necessary, for example the manual adjustment of cylinder stroke. Thus, a large part of possible disturbances and inaccuracies in the production process are essentially excluded.

Conversant and approved parameters can be reproduced when running a job again which, in turn, ensures a smooth start-up after a job change. The geometry of pusher mechanisms can be considered a 'constant'. By setting defined parameters controlling the motion profile, the system set-up almost becomes a constant when running a job again. Thus, incorrect settings can be excluded after a job has been successfully run once. The setting menu is easy to use, set so that high usability is guaranteed. The high speed pusher can be implemented on machines with a large number of sections, in double, triple or quad gob operation.

HIGH PERFORMANCE WARE TRANSFER

Furthermore, the accurate ongoing transport of containers is assured once the high speed pusher has precisely positioned them on the machine conveyor. Heye International's high performance ware transfer type 4220 (with two parallel running conveyors) makes use of a simple but important principle that is also well known by motor sports racing drivers. They reduce speed when turning (direction change) and then speed up again.

Centrifugal forces that also affect containers in ware handling processes and make them unstable are reduced significantly.

The containers perform direction changes in a smooth and even motion sequence. By reducing centrifugal forces and implementing a modern drive system (Simotion®) with constant and reproducible parameters, the transport of containers at this critical point is managed successfully.

ACCURATE LEHR LOADING

Once containers reach the cross conveyor, it is critical to avoid negating the advantages achieved when pushing ware into the annealing lehr. Here too, lehr loaders driven by servo motors and equipped with up to three independently driven axes operate high speed production lines. The modern and reliable Simotion® drive system provides parameters that can be repeated precisely for each production run, once properly determined.

In addition to these technical accomplishments, the question remains how possible investments can be paid off. This question can certainly be answered by model calculations. However, it makes no sense to implement the latest technologies from batch house to production machinery and accept rejects due to poor ware handling. Every high class article produced properly but rejected during the ware handling process reduces turnover and profit. ■

Type 2158 pusher in detail

HEYE INTERNATIONAL

Based at Obernkirchen, Germany, Heye International GmbH is one of the international glass container industry's foremost suppliers of production technology, high performance equipment and production know-how. Its mechanical engineering has set industry standards for more than five decades. Extensive industry expertise, combined with the positive attitude and enthusiasm of Heye International employees is mirrored by the company motto 'We are Glass People'. Its three sub-brands HiPERFORM, HiSHIELD and HiTRUST form the Heye Smart Plant portfolio, addressing the glass industry's hot end, cold end and service requirements respectively.

Lehr loader bar

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