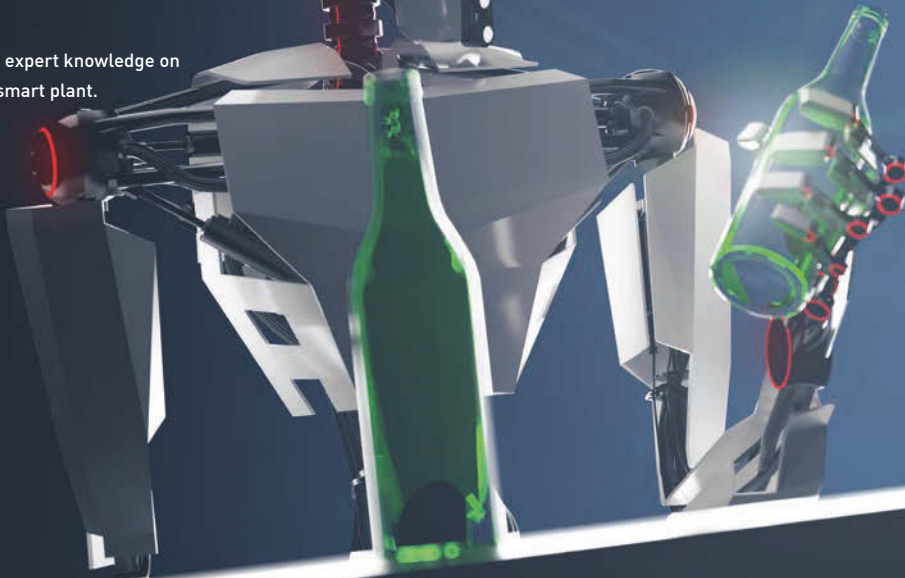


WE ARE GLASS PEOPLE



► With Heye's expert knowledge on the road to a smart plant.



# Heye's smart plant toolbox

► Pic 1. Digitisation in a glass plant.



Heye International\* outlines its technology for an automated 'smart' plant, including a new BlankSideRobot with advanced automatic safety measures.

**A**doption of the latest technologies is now crucial for the international glass container industry. Glass is constantly under pressure from other packaging materials, while attracting skilled people to work at the industry's factories is an increasing challenge.

Heye offers customers a partnership on their individual path towards a smart plant, resulting in the creation of a highly automated and cost-effective glassworks.

## Selection is key

Timing and selection are key to defining the perfect path towards a fully automated plant. Combined with rising CAPEX challenges, this makes it absolutely necessary for plants to identify a partner when it comes to the selection of appropriate technology. Not everything that is possible makes economic sense for a glass container plant.

The Glass People at Heye combine long-

term process expertise and a passion for the material with the latest technology. Every possible solution is evaluated by the company's process experts, based on the decision criteria of financial ROI, workplace safety and influence on product quality.

## Heye GobMaster

Gob forming is at the beginning of the process. The new GobMaster is complementing the Heye servo feeder and servo dual motor shears. The camera-based system offers the possibility to determine and control the gob weight and favourably exploits the additionally generated data for all production processes.

Two cameras placed underneath the shears act as sensors, generating 3D gob images. The software logic determines geometric data of these digital 3D models, such as length, diameter, position, and

tilt angle. This data ultimately calculates the gob volume and weight.

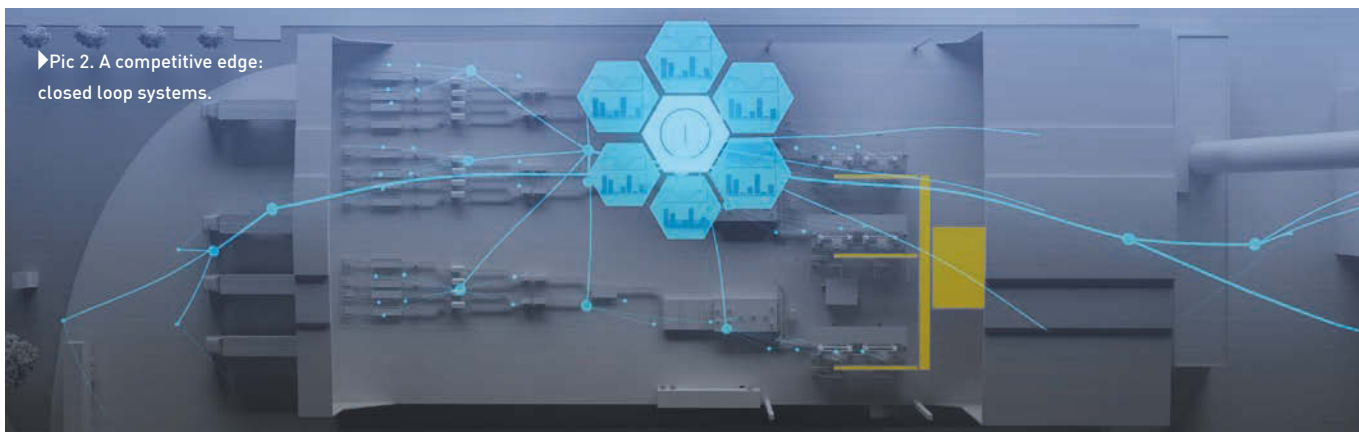
In real-time, the cameras monitor the gob weight and where malfunctions or deviations are identified, the system immediately reacts, and the Heye Process Control directly initiates rejection of the article at the hot end. Consequently, the motors automatically correct these deviations by mechanically adjusting tube height and plunger position.

The GobMaster is also available as stand-alone solution, without having a Heye process control on the line, e.g. for production lines dedicated exclusively to BB articles. **[Pic 1]**

## Heye BlankMaster

The BlankMaster offers two functionalities in one equipment: cameras for monitoring of gob loading

Continued>>



► Pic 2. A competitive edge: closed loop systems.

and a temperature control for the blank side. Two cameras automatically measure gob loading parameters while a pyrometer measures blank side temperatures in the area of the blank, plunger, neck-ring, and parison.

This combination avoids defects and leads to enhanced process stability and short job change times. For the temperature management, a closed-loop can be set in place. In addition, the clear images of the gob loading allow the operator to precisely adjust the delivery system.

### New KUKA BlankSideRobot

The robot experiences of the last years have led into a new concept. In result, there is a new compact design based on a KUKA robot.

LEDs show the direction of travel, oil level, general operating status, operating mode, and countdown to the start of the robot. Particular attention was paid to both safety of the system and safety of the operator. When it comes to system safety, the focus is on collision prevention/detection (between robot and invert) and a non-destructive tool.

The first stage is collision avoidance. The SpeedLine's invert mechanism stops as soon as the lubrication robot is

in the collision area. The second stage is collision detection. If a collision does occur, the station is automatically stopped to prevent further damage.

The third stage is the use of a “non-destructive” lubrication tool. Heye International uses a breakaway magnetic coupling. If there is actual contact between the invert and the lubricating head, the front part of the tool detaches from a magnetic coupling on the lubricating tool. A catch rope, similar to the rims in Formula 1, prevents the lubricating tool from falling uncontrolled into the machine.

### Roadmap

A large set of closed loop solutions gives the customer a competitive edge (**Pic 2**). Heye offers operator assistance for gob loading and closed loops for weight. Following the glass flow, on the blank side, closed loops for cooling and press duration/glass distribution are available.

The swabbing robot eliminates one of the most important manual working steps, at the same time being the basis for precise, infrared-based temperature measurement on the blank side. Closed loops on the blow side allow accurate, high speed ware handling (**Pic 3**). Dead plate cooling is controlled, creating the

basis for proper bottle movement through the high speed pushers, while the closed loop for ware spacing is a second speed-relevant factor. Furthermore, both loops eliminate defects generated by a wrong ware handling set-up.

Many of these solutions are already available, while others are in the prototype phase. In some areas, operator assistance is a good first step and in other areas, full closed loop systems are already in place.

### Partnership

In summary, the Heye smart plant toolbox combines different innovative solutions in major areas. All of them have become possible through a set of enabling technologies, from sensors and communication networks to robots.

The Heye Glass People are the long-term partners to develop a common roadmap for the journey to a smart plant, a factory that will be able to produce high productivity containers at low cost, resource-efficiently and with a consistently high quality. ■

\*Heye International GmbH,  
Obernkirchen, Germany  
[www.hey-international.com](http://www.hey-international.com)



► Pic 3. High speed ware handling with the right set-up.