

GLASS CONTAINERS

The enhanced efficiency of HEYE's BlankSideRobot

With its precise swabbing and minimal lubricant usage, HEYE's BlankSideRobot revolutionises glass container production – offering 24/7 reliability and multi-weight capability. It has an integrated design, safety features and LED indicators – all ensuring efficient operation while making it an optimum solution for various production processes and glass types.

Further enhancing the efficiency of the glass container production process, the cutting-edge blank side swabbing robot comes as the latest addition to Heye International's line-up of equipment advancements. The Heye BlankSideRobot's compact design eliminates the need for extra control cabinets as the entire control system is seamlessly integrated within the robot and the set-up section. Furthermore, Heye engineers have paid great attention to the oil supply system – adding key emphasis upon minimizing the distance for oil supply.

LUBRICATION

By having the lubricant container directly mounted in the robot housing, the lubricant supply line to the spray nozzles has

been significantly shortened. This brings the crucial advantage that the hose line is considerably shorter – thereby preventing sedimentation of the graphite particles out of the emulsion. It also ensures a permanently consistent emulsion mix and clogging of the supply lines is avoided. The redesign of the spray tool and its attachment to the robot arm have significantly increased the spray tool's lifespan and operational safety. The robot's integrated LED strips not only offer a clear visual representation of its operating status but also serve as a convenient way to monitor the lubricant level in the tank.

OPERATING PRINCIPLE

The robot moves along a track mounted on the overhead beam – ensuring that the floor remains



free from obstacles while allowing for seamless mould changes without any interference by the robot. Heye IS machines are prepared for the installation of the Heye BlankSideRobot. Due to the sturdy mounting of the robot on the overhead beam, the effect of vibration is eliminated. By excluding vibrations the lubrication points are always precisely targeted. The robot sprays an emulsion into the opened moulds on the blank side. 'Swabbing on the fly' is another key advantage - eliminating the need for production downtime. Short spraying cycles with a small amount of lubricant avoid the need to reject bottles after swabbing. In conjunction with a servo

invert mechanism, a special programme for lubricating the neck rings can be used.

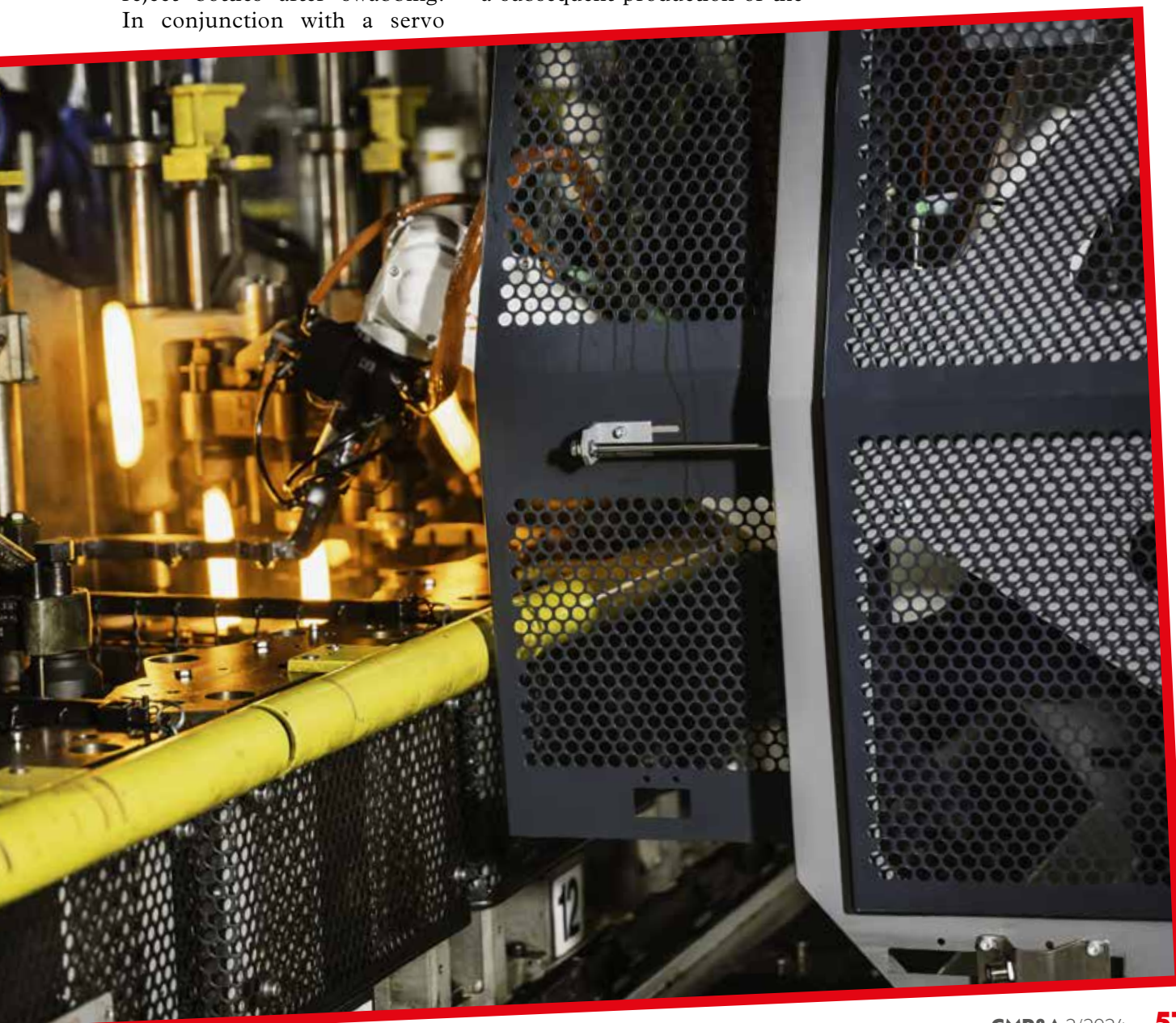
SET-UP

Another notable advantage is the robot set-up process, which is realised using a set-up section located in front of the IS machine. Here a significant benefit is the integration of the control system within the set-up section, which eliminates any need for additional control cabinets. The operator enters the coordinates of the motion profile and sets the movement speeds. Once the job is saved in the article database, it can be recalled and re-applied during a subsequent production of the

article. In multi-weight operation, the Heye BlankSideRobot can handle up to four different mould and finish jobs simultaneously - optimising it for product testing purposes.

HEALTH AND SAFETY

Particular attention has been paid to the safety of both the system and the user personnel. When it comes to system safety, the focus is on detecting and preventing robot-inverter collisions while using a non-destructive tool. The first stage is collision avoidance, where the SpeedLine's invert mechanism stops as soon as the swabbing robot enters the



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potential collision area. The second stage involves collision detection. If a collision does occur, the section will automatically stop to avoid any additional damage. The third stage involves the use of a 'non-destructive' lubrication tool. Heye International uses a breakaway magnetic coupling. If there is physical contact between the invert and the lubricating head, the front part of the tool disconnects from a magnetic coupling on the lubricating tool. A safety rope, similar to the wheel tethers used in Formula 1, prevents the lubricating tool from falling uncontrollably into the machine. The safety of the personnel is guaranteed by several equipment features. Firstly, the robot's housing protects the operator from contact with the moving robot arm. The entire unit (hanging on the overhead rail) is equipped with sensors. When the robot starts its lubrication cycle, the area in the direction of travel is monitored by sensors. Should someone enter this area, the Heye BlankSideRobot stops automatically. In addition, the retractable panels prevent the

operator from reaching into the IS machine past the robot. The robot's integrated LED strips indicate the operating mode, the direction of travel, the countdown to the robot's start and the oil level in the oil tank.

ADVANTAGES

With Heye's cutting-edge robot technology a glassmaker will experience the following benefits:

- Precise and on-time swabbing with minimised lubricant consumption
- 24/7 consistent and reliable swabbing performance
- Multi-weight production possible (different articles on

one machine)

- Oil storage tank and oil mixing unit both integrated in the robot
- Short piping and less wiring
- Magnetic coupling between the spray tool and the robot arm
- Seventh axis (decoupling) for manual robot relocation along the production line
- Neck ring swabbing (in combination with a servo invert)
- Clear display of operating status by LED lights
- Easy-to-use touch panel for programming and set-up

The Heye BlankSideRobot can be easily integrated into a Heye SpeedLine. It is suitable for all production processes (Blow & Blow, Press & Blow and NNPB), as well as for round and non-round articles in any glass colour. ■

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ABOUT 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 knowhow. Its mechanical engineering has set industry standards for more than six 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.