

Heye Newsletter I, 2020

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DEAR CUSTOMERS AND FRIENDS,

We left behind a very successful year and have started with ambitions, a well filled order book and very promising business prospects for the new year 2020. The container glass market is going well in many areas of the world and your customers are planning with improving sales figures and corresponding investments in capacity and quality.

We see ourselves as a part of your supply chain and we are prepared to support

your investments in budget, time and quality.

Despite all the positive expectations and promises for the year, a small virus of micron size shows us that we are all human beings and that there are situations in life where technology is reaching its limits. Let us all try to jointly manage this global threat with the highest care for our employees, our companies and our relationships. We hope that the Coronavirus epidemic will soon be overcome and global trade and personal relationship can continue without harming the health of people.

In this context we look forward to a challenging Glasstec-year with interesting innovations and exciting businesses for all of us.

Yours,
Dirk Pörtner

NEW HEYE STARWHEEL INSPECTION MACHINE BENEFITS STOELZLE



Stoelzle Oberglas in Köflach, Austria, successfully operates the latest glass container inspection technology from Heye International for more than one year: The SmartLine 2 starwheel inspection machine proved to combine speed, reliability and

flexibility to deliver accurate results.

SmartLine 2 is the latest generation of Heye's starwheel inspection machine series. Developed and manufactured at Heye International's dedicated Cold End Centre in Nienburg, Germany, SmartLine 2 glass container inspection equipment can be configured in several different ways, with up to six inspection stations available. The Nienburg facility employs a team of experts and features a modern production layout. Importantly, the centre is close to the Ardagh Group's Nienburg glassworks to undertake essential testing work.

FLEXIBLE INSPECTION OPTIONS

Among the SmartLine 2's highlights are faster job changes thanks to the equipment's improved design and accessibility, the potential to use existing tooling sets and its enhanced user interface. Full data connectivity to all plant information systems is possible, with easy integration into existing lines. As well as featuring the latest non-contact inspection innovations, the equipment benefits from outstanding control reliability to avoid downtime.

Depending on the customer's requirements, various container characteristics can be checked:

- Tightness.
- Finish diameters.
- Container height.
- Finish and shoulder checks.
- Bottom and heel checks.
- Body checks.
- Wall thickness inspection (non-contact).
- Defects on the finish surface (LOF - line over finish).
- Out-of-round, body diameter.
- Mould number reading (dot code and alphanumeric).
- Dark check inspection.

In addition, the latest non-contact inspection features are integrated, as well as a self-learning system for camera-based check detection by Ranger 2.

POSITIVE FEEDBACK

Feedback generated from Heye International customers has confirmed the SmartLine 2 equipment's robustness and reliability. Stoelzle Oberglas in Köflach, Austria, that was the first glass plant to implement this new generation, is very

satisfied with the benefits of the new SmartLine 2. After launch at Glasstec 2018 the company purchased three machines that run reliably and safely. "Knowing that the SmartLine 2 was brand new, we trusted in the competence of Heye. Our longterm and proven partnership finally led us to go for this new generation of inspection machine," says Gerd Müller, Cold End Manager at Stoelzle. "And we have not been disappointed. The stable software and the modern, future-orientated user interface simplify our daily work tremendously." Gerd Schütz, Heye's Product Development Manager Cold End, praises Stoelzle Oberglas as competent partner for the installation of the first SmartLines 2. "We are very happy to have performed the first installation of this new generation together with this great Stoelzle team. It was an easy commissioning without any start-up difficulties." The mechanical design and drive system in particular are highlighted for their robust design, while the control system is renowned for its reliable operation. "Sales figures of SmartLine 2 exceeded our expectations," confirms Gerd Schütz. "Joint development in cooperation with our customers turned out to be the right way." For the coming year, Heye expects further growth potential.

RELIABILITY AND ROBUSTNESS

It is essential for innovations to stand the test of time. In the case of many 21st Century developments, this requirement is achieved by the use of robust industrial electronics and a climate-controlled electrics and electronics compartment, together with high quality components. A touchscreen monitor, simplified access to all electronic components and an extricable mounting plate for frequency inverters and servo controllers enhance operational usability. Hazard-free working conditions for the operator is provided by a microprocessor-controlled safety module. The machine sets the standard in terms of reliability and robustness. The user interface has been improved and makes job changes as easy as possible. Both, the mechanical design and also the control unit are extremely reliable and easy to operate.

The large hood gives optimal access to the working space, reducing job change times to a minimum.

IMPROVED JOB CHANGE TIMES

The application of servo technology results in a high degree of flexibility. Fast and easy changes to an item's indexing position and optimal use of the servo torque for up to four rotation stations are possible. Optimised motion sequences allow faster reactions to changing process parameters. The maximum article height accommodated is 400 mm (up to 500 mm on request), with angular, oval and round containers processed. Thanks to the servo-driven star wheel, indexing positions from six to 48 are possible.

The enlarged working radius guarantees a high compatibility with many existing tooling sets on the market. The tooling range includes a body starwheel, neck starwheel, outfeed guide, centering piece, plug/gauge, stripper and infeed screw.



RETROFIT OPTION FOR INSPECTION MACHINES

*Obsolete inspection equipment can be upgraded to the latest certification and safety levels without the need for new acquisitions. The **retrofitting** of existing machines is often a good alternative to buying new kit. Heye International offers several retrofit packages to match customer needs.*

FOR EVERY BUDGET

To maintain or upgrade standards, the modernisation of [inspection equipment](#) is necessary from time to time. However, the retrofitting of existing equipment represents an economic alternative to buying a new machine. Existing inspection modules and tooling can often be used further, while the machine control unit is replaced by the latest control system, combining unbeatable reliability with ease of use. Glassmakers can select from different refurbishment packages according to their specific requirements and budget. This can include a straightforward surface overhaul of the frame, base plate, mechanical parts etc. as the basic package. An upgrade of employee safety and HACCP is achieved by the inclusion of housing and door solutions. The next level range of services comprises a simple mechanical refurbishment, as well as an electrical and electronic overhaul or a combination of different packages.

BENEFITS

The glassmaker takes delivery of a properly overhauled and updated inspection machine. The positive result is evident: Increased safety, quality and productivity. A new machine control unit makes inspection work more flexible, as job change times are reduced and spare parts availability is guaranteed for at least 10 years. Heye delivers original spare parts only, with no reproductions provided. Thus, the glassmaker benefits from a sustainable spare parts condition, which similarly guarantees delivery reliability on his part. Sophisticated retrofitting measures reduce mechanical maintenance work and downtime. The inspection machine works reliably, while no time is lost to breakdowns due to obsolete components, electronics or control units. Servo components, inline, etc. let the inspection modules work precisely and accurately. According to the current wave of digital industrialization, remote maintenance via Ethernet is possible with the appropriate retrofit package.

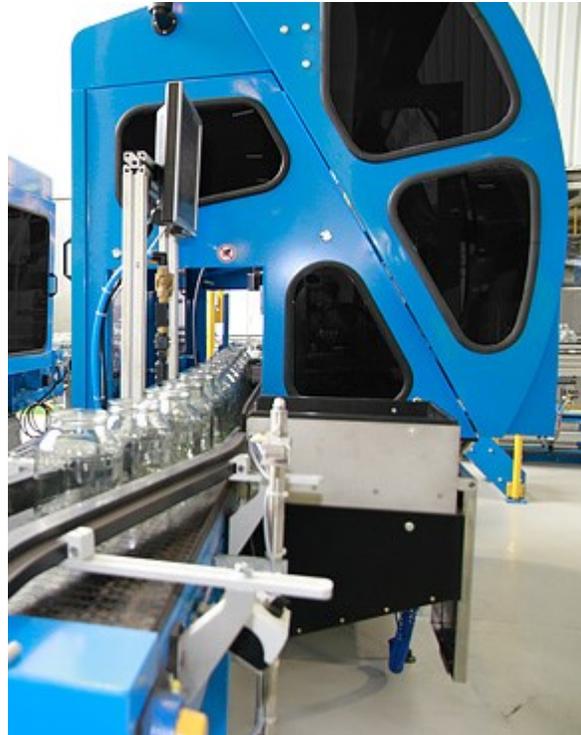
EXPERTS AT WORK

Heye's team of experts can provide advice and consultation with respect to appropriate retrofit work. This can vary significantly, depending on the current status of the inspection equipment and relevant market requirements.

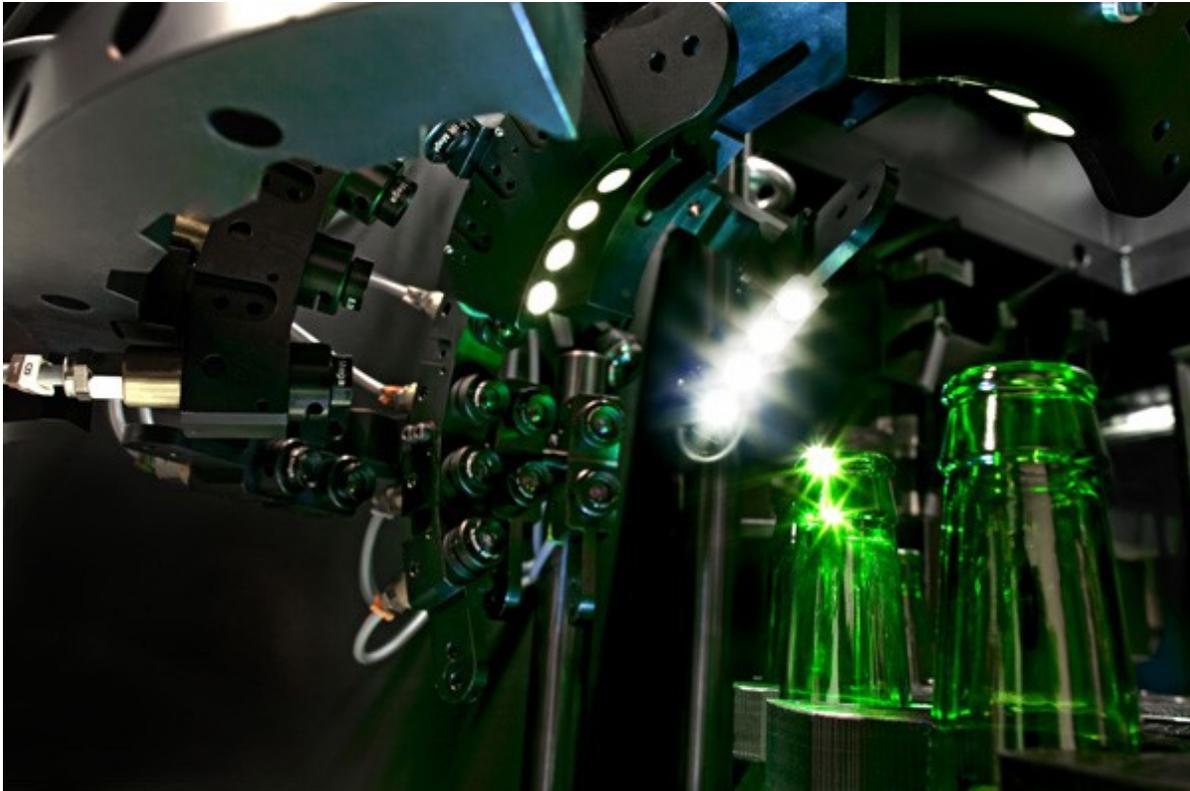
Located in Nienburg, Germany, Heye's Cold End specialists have comprehensive experience with many variants of starwheel machines and ensure the correct implementation of work undertaken.

All inspection modules are prepared according to the glassmaker's needs (e.g. wall thickness measurement). After a start-up check, the retrofitted machine can easily be commissioned in the cold end area by plug-and-play installation.

CONTACT THE GLASS PEOPLE AT HEYE!



HEYE RANGER 2 – CAMERA CHECK DETECTION AT ITS BEST



Check detection is one of the most important quality inspections in container glass production. The most innovative camera check detection technology is now free for the market. Over years a market monopolist has tried to avoid competitive and better products to enter the business. All these blockages expired on January 20, 2020 and the better system is now free without any limitation. The HiSHIELD [Ranger 2](#) has been developed to fulfill the customer's quality expectations and it is fully available in every country of the world.

FULLY MODULAR AND SCALABLE SYSTEM

A Ranger 2 system consists of one camera, collecting five images simultaneously via five lenses and fiber optic image guides, the illumination unit and the control unit with the software for image processing, including the decision “container okay or not okay”. Based on the budget and quality requirements of a glass plant, a typical and recommended configuration would be four parallel systems, each dedicated to and optimized for one of the following types of checks:

- horizontal
- shoulder
- vertical
- bottom.

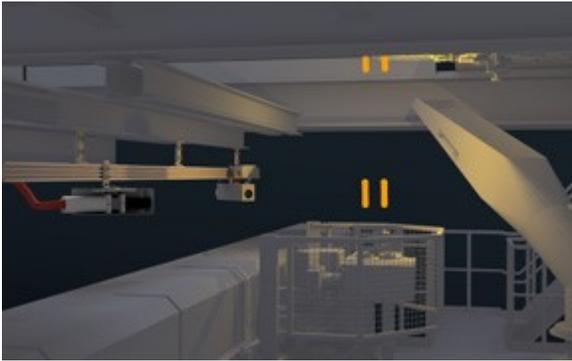
The job change time of the Ranger 2 system is less than 15 minutes, like usual in the market.

INTELLIGENT CLOUD MASKING – A UNIQUE SELF LEARNING SYSTEM

Every container produced must be regarded as a unique object and any check detection concept has to respect this. For this reason, each Ranger 2 system is using Heye's patented Intelligent Cloud Masking (ICM). The purpose is to differentiate check defects from ordinary reflections. Bearing in mind that each article is distinctive, the Ranger 2 system is designed to investigate each one independently and separate check from reflection. It is not necessary to teach the detection system as it is self-learning. Each container serves as a time saving reference for itself. Moreover, the inspection zones are dynamic in nature. The Ranger 2 system is therefore able to detect different variations of checks, as well as to recognize new variations of them during production.

Apart from advanced camera and non-contact solutions, smart data is the key. The Heye PlantPilot collects and aggregates production data in the plant. The borders between Hot End and Cold End will disappear, information is shared on the spot. Tracking and tracing as well as the possibility of creating user-specific analysis are additional components, allowing continuous improvement processes to increase productivity. Self-learning systems are one of the cornerstones of Industry 4.0. The Ranger 2 camera check detection proves to be the best solution in the market. Heye's clear and innovative product strategy, integrating latest camera solutions, remains unchanged.

CAMERA-BASED WEIGHT CONTROL PROVIDES PRECISE GOB MANAGEMENT



Plunger cylinder sensor technology is a well-proven function of the [Heye Process Control system](#), supervising and adjusting press-blow and NNPB production processes. Until now, however, these benefits have not been possible for glass container production via blow-blow operation.

The new Heye Gob Master system closes this gap, ensuring that sophisticated process control integrates the benefits of visual gob measurement.

Heye Process Control 4.0 is a closed-loop solution for the pressing process of all plunger mechanisms within an IS machine. Simultaneously, it keeps the gob weight stable. The technology displays a number of forming events on several selectable charts and permits the improvement of parameter setting by comparing data.

Early recognition at the start of malfunctions increases production efficiency. The integrated plunger cylinders ensure certain gob parameters for press-blow and NNPB production. For heavy and premium articles produced using blow-blow operation, however, this technology cannot be utilised. Consequently, glass container manufacturers have increasingly requested access to gob supervisory and adjustment technology for blow-blow production as well. The Heye Gob Master satisfies this requirement.

FUNCTIONALITY AND BENEFITS

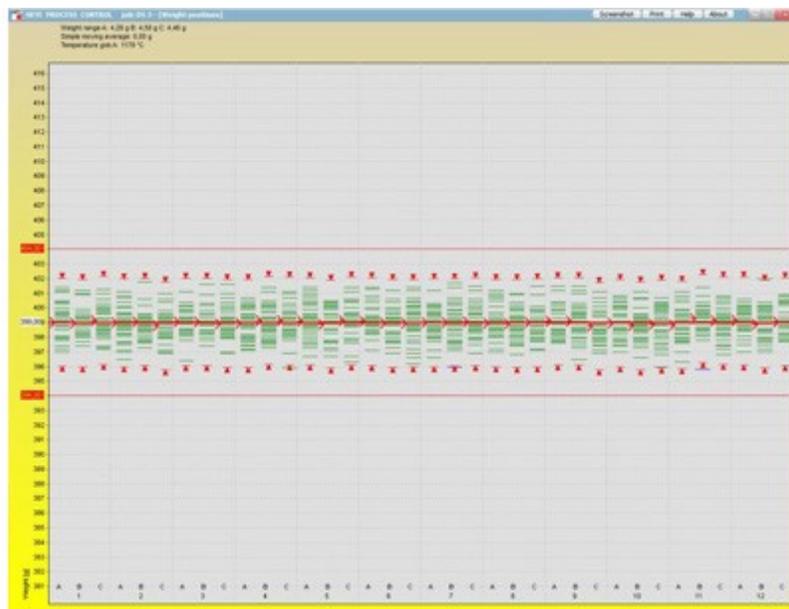
The camera-based system offers the possibility to determine and control the gob weight and favourably exploits the additionally generated data for all production processes. Two cameras placed underneath the shears act as sensors, generating 3D gob images. The software logic determines geometric data 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 shape 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, Heye stepper motors automatically correct these deviations by mechanically adjusting tube height and plunger position.

Production runs operating the blow-blow process benefit the most from this recent technology. However, the added value for press-blow and NNPB production runs is also obvious. With Gob Master technology, gob shape and gob fall can be measured, which is impossible using the plunger cylinder functions alone. Gob shape and weight become reproducible, which results in a stable production process, ultimately improving efficiency and quality. There is no waste of energy or raw materials due to data inaccuracies.

ANSWERED BY EXPERTS

Heye International experts confirm that the Gob Master can be retrofitted to existing equipment: Where a Heye Process Control system is already available, the latest version can easily be retrofitted via a plug-and-play device. The Gob Master itself consists of two high speed cameras, a control unit, a water chiller and a monitor. Furthermore, the settings of the Heye Process Control system can easily be adapted to several gob weights running simultaneously on a single machine. This underlines the high flexibility of the system and shows its sophisticated functionality.



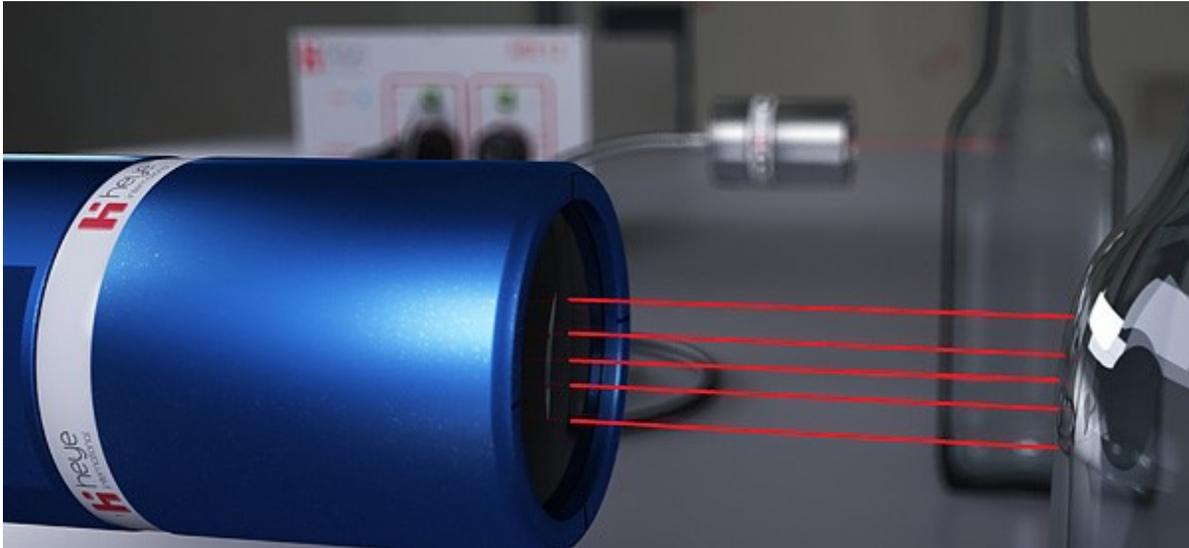
SUCCESSFUL HEYE SERVICE CONFERENCE – WELCOME TO THE TEAM!

What characterizes the perfect team? Which skill diversities can enrich the quality of a whole service team? And what are the benefits for the customer?

These and other questions have been discussed and deepened during a one-week service workshop at the Heye Head Quarters in Obernkirchen, Germany. 27 participants of Heye service experts from all over the world gave their input and learned about the latest products at Heye International. Furthermore, in between the service workshop sessions there has been enough time to maintain this worldwide team spirit during recreational activities. So finally, the service team became part of the “We are Glass People” community. Heye says “Thank you!” and: “Welcome to the team!!”



HEYE WALL THICKNESS MEASUREMENT INCREASES YOUR QUALITY



Wall thickness is an important parameter monitored constantly by fully automatic inspection equipment at the cold end when manufacturing glass containers. Complex star wheel machines employ an indexed star wheel with pockets into which the containers fit; during each pause in position, various inspections are performed. The wall thickness of every item is inspected by chromatic confocal sensors. Measuring that the wall is not too thin at any point requires inspecting at a number of positions on the bottle, where the wall is most likely to fall below acceptable limits.

CONTACTLESS MEASUREMENT

Chromatic confocal measurement has become the standard technique for use in inspection machines. A major advantage of this technology is its suitability for contactless in-line measurement of container glass. High tolerances, flexibility in angles and distances are performing a suitable result anytime. Wall thickness measurement is unaffected by the rotation or movement of the container. The bottles being axially rotated in the star wheel while the glass thickness is captured using compact chromatic measuring heads. The decisive factor in the use of this technology is that high precision wall thickness measurement is not dependent on the measured object being static or held in an exact position.

A further advantage is that, unlike other contactless measurement methods, thin wall thicknesses can be measured over a large measurement range. In addition, this method can handle greater separations between the measuring heads and glass surface. Potentially, the measurement technology employed in our sensors can achieve even higher speeds; the upper limit is set by the container output and transfer mechanisms related to the machine.

The modular construction of Heye International inspection machines allows further testing/inspection equipment or sensors to be retrofitted at a later date (competitor machines can be equipped on request). The diameter (or out of round) of the bottle is a further criterion, a key factor in ensuring proper labeling of the bottle.

MULTI-POINT SENSORS

Current filling techniques bring with them increased demands on the quality of glass containers. Quality assurance also has a part to play, with major advances continuing to be made in the measurement technology employed in inspection machines.

The latest generation of sensors does not use only single points to determine glass thickness but can measure container wall thickness along a line. This is achieved by arranging several measuring points along a 10 mm line, enabling the area to be checked for thin spots to be increased by a factor of ten, without extending the time needed for measurement. This considerably increases the equipment's ability to detect thin spots on the surface of the bottle.

The sensors downstream of the special measuring heads support up to 12 points that can be measured in parallel. This sensor technology can again be retrofitted to existing star wheel machines. This allows the benefits of the contactless chromatic confocal measuring technique to be extended into other areas of application. Together with the additional container properties testing provided by [Heye's SmartLine 2](#) product range, which can comprise up to six inspection stations, this technology becomes an essential prerequisite for ensuring that glass producers are able to meet the ever-increasing demands imposed by bottler.

SALES DEPARTMENT

Please contact our Sales Department anytime if you need further details or budget information: sales@heye-international.com

The Heye team is happy to help you to increase your quality!



MALAYSIAN GLASSMAKER BENEFITS FROM HEYE PRODUCTION EXPERTISE



Advanced hot and cold end technologies from Heye International are helping JG Containers Sdn Bhd to maximise glass container production yields at the customer's Klang glassworks in Selangor. Located close to Kuala Lumpur, JG Containers has been making clear glass bottles and jars for soft drinks, liquors, foods and pharmaceuticals since 1972.

With single furnace, 180 tonnes/day, JG Containers enjoys 50% share of the local flint glass market, as well as exporting 35% of output to neighbouring ASEAN countries, Hong Kong, Mauritius, and the Middle East. To serve domestic and international customers, the manufacturing facility is conveniently situated close to

Malaysia's major trunk roads network, as well as Port Klang.

Quality management systems have been implemented in accordance with the requirements of ISO 9001:2015 standards and the factory's products are certified under this scheme.

Over the years, JG Containers has regularly modernised its manufacturing operations, adopting proven industry developments in furnace, forming, inspection and packaging technologies, while employing advanced digital methods to improve its products and customer service.

The glassmaker's latest investment calls on the established production expertise of Heye International. This includes the installation of an 8-section, double gob 5 inch IS machine that has been specially adapted to accommodate the customer's existing variables. The Heye IS machine is fully prepared for NNPB process and is equipped with latest Heye technology such as [rotor mechanism](#) for constant glass homogeneity, [dual motor shears](#) and [high-speed delivery system](#). At the cold end, Heye has delivered its Wenspect® quality control inspection solution - a combination of Heye [SmartLine check detection system](#), Heye [multipoint wall thickness measurement](#) and Iris Evolution sidewall inspection. Since completing this installation, the customer has recorded 93% glass pack efficiencies. Finally, the Heye team likes to thank JG Top Management Mr. Sanjeev Chadha and Mr. Anwardeen for this opportunity and trust in Heye as a reliable partner.

MESSAGE IN A BOTTLE FOR STRONG RABBITS: THE LARGEST GLASS EASTER EGG

Egg colouring for Easter is a widespread Christian tradition known from Armenia to Russia, the Mediterranean and Central Europe. A normal egg weighs less than 100 grams even in the XXL class. An egg made of glass is not that much heavier. But so is the largest, hand-blown glass Easter egg in the world, however.



THE GLASSMAKERS AND THEIR 20-KILO WORLD RECORD EGG FOR THE NEST

It weighs a whopping 20 kilos, creates a height of one meter - and thus broke the world record. It was made in Bodenmais, a region in Southern Germany, in the middle of the Bavarian Forest. The craft of glass making has a very long tradition in the Bavarian Forest.

WHEN EASTER EGG COLORING TAKES THREE DAYS AND NIGHTS

The JOSKA glassmakers and glass artists in Bodenmais also put a lot of work into the largest hand-blown glass egg in the world: four master glassmakers and two helpers brought the egg into shape, two grinders and two painters completed the work. The glass painters alone worked on the glass record for three days. At night it came back into the oven to burn in layer by layer. The effort made by the glass experts was definitely worth it: they achieved the next world record. Once you are in Germany you can visit and watch this glass Easter egg here: www.joska.com

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