

Bucher Emhart Glass: **HIGH-QUALITY MACHINES FOR HIGH-QUALITY PRODUCTS**

Bucher Emhart Glass, the leading manufacturer of glass container machines and equipment, is delivering a range of new products and improvements to make customers' lives

easier, from quiet, easy-to-use servo-driven forming machines to more accurate cold-end inspection. Catching up with the firm at glasstec, we spoke to Werner Gessner, Vice President of Sales and Marketing, and Michael Curry, Vice President of Inspection, to learn more.



There were many important changes at Bucher Emhart Glass during 2014. On the inspection side, one of the biggest was Mike Curry's promotion to VP inspection taking over from his predecessor.

Mike, a UK citizen, first came to Bucher Emhart Glass when the company bought inspection specialists ICS Inex back in 2007. "I had my own business then, and we were an agent for ICS Inex," he recalls. "When the acquisition came about, Emhart Glass (as it then was) had a direct selling model, and there was no need for a UK agent. So at that point I joined Emhart directly. Although I am officially based in Switzerland now, I actually live in Manchester, in the UK."

Mike Curry's promotion to VP inspection give him the responsibilities for the inspection business. "In simple terms, I'm responsible for the inspection business as a whole, although sales are handled by Werner's group, with support from me and the team," he confirms. "I'm also responsible for new-product development on the inspection side."

THE BIS INNOVATION

The last few years have also been busy for Emhart in terms of new product introductions, making its glasstec stand a fascinating visit. "We're showing a large number of parts, machines, and

services," says Werner Gessner. "New this year, we have a complete BIS machine, which we're hoping will have a big impact in the container glass market. It's a fully servo-driven machine, which means fully controlled mechanism motion. BIS also offers high flexibility and ease of use, but also excellent repeatability."

Why is repeatability so important? "It's vital for companies with frequent job changes in their production runs, and have to set the machine up two or three times every week – or even every day," explains Werner. "With BIS, job changes are far quicker, and there's no need for mechanical adjustment, making consistency far easier to achieve."

NIS, introduced in 1999, was BEG's first fully servo-driven machine, but it really excelled for high-quantity, high-speed output with few product changeovers. That made it an ideal choice for the larger, higher-volume customer, but less useful to smaller plants who have to carry out frequent job changes to accommodate shorter production runs. "With BIS, we're moving more towards medium-sized and higher flexibility machines," confirms Werner.

SILENCE IS GOLDEN

At this point, chatting near the Bucher Emhart Glass stand, we suddenly notice how little noise is coming from the BIS machine

on show, which has been up and running in the background the whole time. With no pneumatic movements, there are no noisy air releases, making BIS significantly quieter than traditional pneumatic machines. "For a glass plant, this noise level is nothing," says Werner. "When you're used to pneumatics, servo is like silence!"

"Next year, we're aiming to introduce a quad-gob BIS, which means you can make really small containers and small glassware for applications such as pharmaceutical containers, as well as beer and wine bottles. At that point, we'll have BIS with double-, triple- and quad-gob. And changeover from double- to triple-gob is very easy, as the section is already prepared for these two formats."

CLOSING THE LOOP

One of BEG's key areas of focus is working to close the loop between inspection and forming – using inspection data to control and optimize the forming process in real time. Two recent innovations in this area are FlexIS Blank Cooling Control and Plunger Up Control.

For several years, measurement systems such as Temperature Control System (TCS) and Plunger Process Control (PPC) have provided valuable insights into production processes, but machine operators must still monitor their readouts and make manual adjustments – a demanding job. The next logical step is to automate this process with closed loops.

If a plant is using a BEG AIS or BIS machine, producing in 12-section triple gob, no fewer than 72 mold-half temperatures and related cooling valves need to be adjusted. FlexIS Blank Cooling Control automatically maintains blank mould temperatures in a preset range.



Mike Curry, Vice President of Inspection



Werner Gessner, Vice President of Sales and Marketing

Following a new production startup, cooling is also adjusted to match the new desired mold temperatures. As a result, it's far easier to maintain good product quality, and the operator is freed up to focus on improvements in other areas.

Another very demanding task is controlling the pressing in press-and-blow or narrow-neck press-and-blow forming – particularly when multiple-pressure pressing is being used. FlexIS Plunger Up Control obtains timing data for every plunger stroke, then adjusts initial pressure levels to achieve the desired setpoint for the plunger rise or dwell time.

With multi-pressure pressing, the operator can control the initial up motion and the distribution of the glass independently from the applied pressure during dwell time – a significant advantage in terms of controlling the characteristics of the parison and preventing defects.

Both these closed loops are fully integrated into BEG's FlexIS control system, allowing the machine operator to set up and adjust all the necessary parameters on the FlexIS User Console (UC). Settings for each job can be saved,

and reloaded instantly following a job change.

Both technologies are commercially available now, and have already been installed at glass plants in Europe and South Africa.

IMPROVING OPERATOR SAFETY

So what are the next steps? Where do we go from here? "Apart from developing the machine itself, safety is a big issue that we're all working very hard on," says Werner. "When we think about safety, we tend to think about accidents, but in fact repetitive strain injuries are much more common. So we're aiming to make our machines more ergonomic and comfortable to use with innovations such as the conveyor ladder, which makes it easier and safer to carry out essential servicing.

"Another example is our blank side lifting device, which helps operators avoid heavy lifts and awkward working positions. We've also introduced bright LED lamps to boost visibility, and a range of improvements that prevent parts from moving unexpectedly while maintenance is being carried out."

MORE THAN A MACHINE

Another important opportunity for Bucher Emhart Glass is developing more added-value services around the machine. "We're not just selling a piece of metal, we're selling a solution," affirms Werner. "The services we offer aren't just maintaining the machine and fixing it if it breaks down, but also helping plants to produce the containers and increase the efficiency."

Such support begins even before the decision to buy. "Providing a solution means understanding the needs of glass-makers, now and in the future, and then helping them make a decision on the best type of machine to buy," says Mike.

GLOBAL PRESENCE

Werner Gessner outlines BEG's current geographical focus. "At the moment, our main market remains Europe, because from the technology standpoint Europe is still out in front. Nevertheless, South America and Asia are growing markets for us, and we have a production plant in the south of Malaysia, just across the border from Singapore, where we've been able to achieve very high manufacturing standards."

How important is Africa to



BEG? "It's an interesting opportunity, no doubt," says Werner. "We're seeing some developments there, and the demand for glass is growing too, from newly opened breweries, for example. People don't want to ship glass into a country, or across it, and we're seeing quite a few green-field glass plants springing up."

For BEG, success in this exciting new market means leveraging the strengths of the firm's existing network. "Because we work with so many partners, we can supply complete glass plants – from the batch, furnace, and forming through to inspection," notes Werner.

AUTOMATED INSPECTION

As Mike explains, the inspection process, or 'Cold End', focuses on automatically inspecting the finished containers before they move on to be palletized. "Our aim is to supply solutions that are completely automatic," he says. "Computer-controlled vision systems are much more reliable than human control, because they work at exactly the same level all the time. And with the levels of technology we have now, and will soon develop even further, inspection is becoming ever more precise and detailed."

"As the complexity of glass products increases, so does the task of inspection," Mike continues. "In the market right now, every brand owner wants their own craft product made especially for them, and that puts a lot of pressure on manufacturing and inspection."

"However, the fact that glass is used for so many different applications is very positive for us," Werner points out. "For example, we don't have the standardized beer bottles that we used to have 10 or 15 years ago. Now, each brewery has its own style of bottle, to differentiate their brand and their products."

COMPREHENSIVE COVERAGE

What kind of inspection would be carried out on a jar intended for baby food, or just an adult foodstuff such as a cooking sauce? "The full surface of the container would be inspected, outside and in," replies Mike. "The base, in particular, the finish, the complete sidewall – full coverage inspection, in other words."

This type of inspection can require up to 20 individual cameras or even more, depending on how many functions are involved. "Some defects are purely cosmetic, and can safely be ignored because they're not dangerous," says Mike. "For example, you sometimes see a washboard effect, which looks as if there are small folds on the surface of the glass. It depends on the market tolerance, and the product that the bottle is to be used for, whether that's acceptable or not."

SAFETY FIRST

However, other defects are far more serious. "If there is a small stress defect, and the container goes through a hot-fill process such as that used for some sauces, the contact between the hot product and the cold glass could cause the container to burst or explode," explains Mike.

That's bad news in itself, but it also has wider repercussions for the filler. "Nowadays, a lot of the filling machines are more high-tech, and don't like to be washed down so vigorously as older machines," explains Mike. "That means that if you do get a burst container, the cleaning process is much longer. So, filling companies are very focused on avoiding that type of problem. And obviously, they also want to avoid breakage when the package reaches the consumer."

Could we reach a point where we have very few defects? "Inspection is crucial, but it will always be secondary to forming," Mike points out. "A lot of the work to reduce defects happens

during the forming process, and we work hard on the forming side to eliminate these defects. For example, we use closed-loop controls to automatically regulate the process. The inspection machine is more like the goalkeeper in a soccer match – making sure nothing goes out that has defects. However, more up-to-date machines can also feed back data to the Hot End to help improve the forming process and prevent defects occurring in the first place."

NEW REALITY

How is Bucher Emhart Glass dealing with the ongoing financial crisis? "Well, I don't think we can still call it a crisis," says Werner. "We need to accept that this is the situation from now on. With globalization, problems that happen anywhere in the world affect the entire market, and that's the new state of economy – more uncertain and more unclear. We just have to accept it, and work to compensate for the problems and difficulties that can arise. We need to boost our capacity to meet whatever needs come from the market, in the shortest time possible. This means that we – as machinery manufacturers – need to make our machines more modular so that they can be built faster and easier. We need to have more standardization. And that's how we're reacting to the market, and its continuous changes." ■

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