

BUCHER EMHART GLASS

how Allied Glass
went servo with BIS

Forming technology



Allied Glass, based at Leeds, UK, has been using Bucher Emhart Glass' servo-driven BIS forming technology for the last two years. We hear in Allied's own words how they got to grips with their new machine and the benefits they've realized from it.

Bucher Emhart Glass (BEG) has been working on servo-driven glass container forming for over two decades, and launched NIS, its first all-servo machine, in 1999. While NIS is ideal for high-volume, high-speed production, it's less suitable for producers who serve smaller food, beverage, and cosmetics companies. So in 2010, BEG launched BIS, which offers the supreme precision of a fully servo-controlled machine but can handle a wide variety of container designs, sizes and weights, in smaller.

FORMING TECHNOLOGY

Since then, BIS machines have been installed at Nampak Glass (South Africa), Noelle von Campe (Germany) and Allied Glass (UK). Allied, based in West Yorkshire, has two glassware plants and a separate facility devoted to decoration. The Leeds plant (the focus of this article) specializes in flint-glass production, mainly for the premium spirits market. It has two furnaces, averaging 285 and 255 tonnes per day respectively, and nine IS machine lines. Allied's BIS machine is used to manufacture wares from 500ml beer bottles up to 700ml spirits bottles and 75cl bottles for water or premium fruit drinks, all in double-gob using the blow-and-blow process.

TAKING THE FIRST STEP

Before acquiring its BIS machine, Allied was 100 per cent pneumatic. "It was a pretty big decision for us, switching to servo and stepping up to 12 sections as well," says Richard Summers, Group Operations Director. "We're manufacturers, and every minute counts, so we've always played it very safe. But we wanted more sustainability, and more repeatability, so we took the decision to push forward and innovate. We looked at the machines that were out there, and BIS seemed right for us."

However, starting up with BIS was something of a challenge. "There was a lot to learn," agrees Jamie Kirton, IS Team Leader at Allied. "We had some teething troubles on the mechanical side, and it took a while to understand how it worked. For example, if we had a positioning error on a take-out or an invert, we had to look for electrical or motor issues, instead of air-source or cushioning issues."

REPEATABLE QUALITY

Hot End specialist John Wray is a glass-making veteran who's

**Richard Summers,
Group Operations
Director Allied Glass**



been at Allied for 32 years. He monitors performance, quality and efficiency, reports back to the production manager, and advises operators. For him, the key advantage of BIS is its precision. "Once the servos are set, they're set," he says. "You don't need any manual intervention, so there's less human error."

John also finds that BIS's data trail is a big help with finding and fixing production problems. "The history is very, very good," he says. "You click on it and it tells you everything you need to know. The graphical displays have taught us a thing or two – even about our old machines."

That mechanical consistency helps Allied deliver what the market is demanding. "The industry now is all about quality," says Richard. "We used to be allowed a certain number of minor faults per batch run, but now the customer is driving for perfection, so all containers have to be fit for purpose. More and more people are now judging the appearance of the container as seriously as they judge the liquid within. When people buy high-end spirits as gifts; every bottle must look pristine. To achieve that, we need absolute repeatability."

"The overall reliability and repeatability on BIS is far superior to any other machine we have," says Paul Dickinson, Production Manager.

"Looking back and comparing against the first few months of operation, our pack-to-melt ratio is probably up to 15 per cent higher now," adds Richard. "I now get some of our cus-

tomer service representatives telling me, 'Please don't put it on any other machine than the BIS,' because the quality is better."

Servo mechanisms really come into their own when it comes to job changes, with pre-set configurations for different wares and electronically adjusted parameters for precise repeatability. Even though Allied's BIS machine has 12 sections, compared to eight on most of its other IS machines, changeovers are still quicker.

"Generally, we do two to four job changes in a month," says Jamie Kirton. "Ramp-up time is generally better, because there's less to change. The machine does most of the setting itself. And because the time from glass to glass is shorter, we don't have the machine or the lehr going cold."

CLOSED LOOP CONTROL

Allied's BIS machine features a closed loop TCS (Temperature Control System) on the blank side. This is one of the first steps towards BEG's "End 2 End" vision, where data from throughout the production line will be used to automatically optimize production in real time.

Closed-loop is an investment, but it's proved its worth. "We're Yorkshiremen, so we don't like spending money!" laughs Richard Summers. "Talking to operators who'd never had anything like this before, they were sceptical. At first, people weren't sure whether it was even working. But now, if it goes offline, they're shouting, 'When will it be fixed?'"

"The closed loop system is really good," agrees Paul. "There's no operator interaction, it's all controlled by computer, and it controls temperatures really well. Once the operator is able



to step away from the machine, he gets more chance to check the quality of his glass – plus there's less risk of accidents. I'd have a

closed loop on every machine in the factory if I could."

"Not having a guy taking temperatures every hour across

12 sections saves an enormous amount of time," adds Dave Edwards, Allied's Site Manager. "From a glance at the screen, we



know exactly which sections are in range and which ones are going out of range. It's definitely one of the best tools we have on site."

"Of course, operators are nervous, asking, 'Is it going to put me out of a job?'" acknowledges Richard. "But it just moves the job and the skillset. Operators can upskill and move on to quality checks. And if we can make the environment cleaner and quieter, that could help us bring and retain bright young people into glassmaking."

"When we're showing potential new people round, they can see it's a good environment to work in," agrees Dave. "Everything's under control."

"Bottle-making used to be seen as a black art that took 30 years to learn," reflects Richard. "In reality, it's a science, and people are seeing that they don't have to work in the industry for 20 years before they make progress. They just need to understand what the machine is doing."

THE FUTURE IS SERVO

With the training and troubleshooting behind them, Allied are beginning to see measurable efficiency gains from BIS. "Following our learnings earlier this year, I believe our BIS is performing around 2% better than the machine we had before," says Paul. "In fact, I believe it's the top-performing machine at the factory at the moment, in terms of efficiency and quality."

"It's proved that it can hold its own and be as good – and better – than the other machines that we have," agrees Richard Summers. "And the teething troubles we had, I would definitely go through them all again to achieve what we've achieved now."

That brings us to the big question: would Allied buy BIS again? "Today, we regard it as one of the best machines on the plant," says Jamie. "Servo machines, in my opinion, are definitely the way forward for Allied as a business."

"Servo is the future in glass forming, 100 per cent," agrees Paul. "If we're going to get a new machine at Allied, it should be BIS."

Those views are echoed in Allied's boardroom. "We had a meeting less than a month ago," reveals Richard. "And the guys were saying, 'If we were putting another machine in tomorrow, we'd choose BIS.'" ■

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