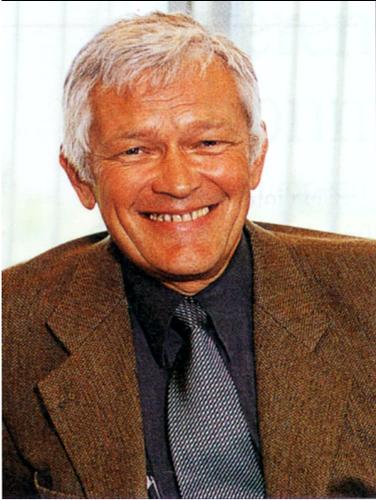


# Next generation IS machine set for Glasstec launch

*Emhart Glass is set to unveil a new forming machine, which it believes is nothing short of a major technological breakthrough. Dr Kurt Siegenthaler\*, Emhart Glass president, has provided Glass with an exclusive insight into the development ahead of its official launch at Glasstec 2000 in October. By Sarah Byrne.*



**Emhart Glass president, Dr. Kurt Siegenthaler.**

Following five years of concentrated efforts and investment, Emhart Glass has developed a new generation of IS machines, called the NIS. The major difference between the NIS and the classic IS machine can be summed up in one word. Automation. Emhart Glass believes that NIS represents a major leap forward in fully automating container glass forming by reducing the variability of the process and by eliminating a number of time consuming tasks which are still performed in many glass plants at present. For instance, start-up time or work out time could be shortened by as much as 50%. In addition, downtime associated with the realignment of mechanisms can be totally eliminated. On a larger scale, NIS will support greater output of containers based on the same plant structure and furnace capacities. It also allows plants to provide the same output with fewer lines.

## Public art provides inspiration

The NIS, or simply New IS machine was designed by Steve Pinkerton, Vice President of research and development, and colleagues based in Europe and the USA. When the first of the new machines was almost finished, Steve telephoned Emhart Glass president, Kurt Siegenthaler to ask him what colour it should be painted. Dr Siegenthaler thought for a moment before replying "Pop art style". Steve was understandably confused and had expected him to answer either beige or grey. However, Kurt Siegenthaler wanted to do something radical. He telephoned the glass manufacturer who had ordered the machine to ask whether he would object to a brightly painted machine. The customer had no objections and the machine that was finally delivered was certainly eye-catching. It incorporated the colours of the German national flag (the machine was destined for a German glass plant), the American star-spangled banner (representing the American branch of Emhart Glass which engineered the machine) and the Swedish flag (Swedish engineers built it!). Kurt Siegenthaler originally got the idea of painting the New IS machines in bright colours from a public exhibition featuring around 400 decorated cows which were dotted along the streets in the centre of Zurich. He contacted the man who had painted the cows, Andy Luzi, and asked whether he could turn his hand to painting Emhart Glass' New IS machines. Mr Luzi agreed and his individual colours and designs mean that each NIS will be unique, or at least the first few.

## Technological breakthrough

From a technological point of view Dr Siegenthaler looked back to his experiences at the company he had worked for prior to joining Emhart Glass. That company supplied high speed machinery which was all mechanical. Its main competitors were Japanese and used a lot of electric/electronic systems, rather than mechanical alternatives. It was then decided that the only way that it could compete was to develop a machine with half the number of parts and consequently, half of the associated costs. Such a machine was developed and proved to be a great success.

He explains that when he joined Emhart Glass he wanted to adopt a similar philosophy: "I thought, why invent the wheel again? Just apply the same principles". The IS standard has been around for so long for a good reason: it combines productivity with cost efficiency. Therefore, Emhart Glass decided to maintain the IS philosophy for NIS. However, it felt that major improvements could be made to the motion of mechanisms, to make them more repeatable and precise, and also to simplify them.

**Sneak glimpse: the NIS will be unveiled at Glasstec in October.**



As a result, Emhart Glass decided that it would build a new IS machine on the same basis as the existing machine, using the same fundamental glass forming technology, but with a reduced number of parts and with electronic parts, rather than mechanical ones. 'As an analogy, take a typewriter and a computer. You can write the same thing on each one, but one is mechanical and one is electronic and that is similar to what we have done with the NIS machine', Kurt Siegenthaler points out.

Using a 10-section NIS as an example, he explains how each section is a 'machine' in itself. Each one can produce a bottle, whether single, double or triple gob. In each section there are ten mechanisms, or ten 'muscles'. In the classic IS machine these mechanisms are pneumatically controlled. However, in the NIS, the mechanisms are servo-electric and can be accelerated or decelerated as required. Dr Siegenthaler describes this as a quantum leap from the classical machine, firstly, because it is much simpler and secondly, because it uses the most modern technology available. Automation means that the forming process is absolutely controlled and therefore quality standards can be consistently maintained. This helps the glass container industry by reducing variability and by eliminating a number of time consuming tasks still necessary today.

### **Additional benefits**

Another key benefit of the NIS is that it can assist with the lightweighting of containers in an economical way, with fewer machine parts and reduced maintenance, leading to less downtime.

The glassmaker operating the first NIS machine is already producing one litre bottles at 330g. Other benefits of the NIS are that it provides a more pleasant environment to work in, mainly because it is quieter than the classical IS machine. Its design also means that it is easy to handle. A computer screen enables the operator to input instructions and change parameters electronically rather than having to take out a toolbox and manually alter the mechanical parts. Electric drives mean that energy consumption is reduced and based on the installation at the German glass plant, it will cost around DM100,000/year less to run than the standard machine. In total the NIS is more economical. It has been calculated that if an 8-section, 5in, double gob classical IS machine is compared to an 8-section, 5in NIS, the NIS has an 'overall advantage' of about 20%.

Ultimately, in years to come, the NIS will be self-controlled and will be able to react to situations during production without the need for operator intervention. According to Emhart Glass it would not have been possible to develop the NIS ten years ago because the technology simply wasn't sufficiently advanced. However now that technology has moved forward, many new things are possible.

### **Prototype built**

Initially just one section was built and installed on a standard IS machine at a German plant, then trialled for about a year. Once Emhart was confident that it worked, a prototype was built and has been producing bottles consistently since April 1999. The German customer

who has been operating the prototype has been so pleased with the results that it does not want to return to the standard IS machine and intends to buy only NIS from now on. Being realistic, Emhart Glass decided that initially it would only build a few NIS machines. The first, the prototype, has been sold and a second is to be delivered to another customer just before Glasstec in October. The third machine is currently being built with a customer in mind, but is not yet sold. The fourth machine will be developed as a smaller version intended for cosmetic, perfume or pharmaceutical glass. Dr Siegenthaler explains that the biggest machines were developed first and provided the greatest challenge. In comparison, developing a smaller machine is relatively straightforward.

### **Enhanced technology at a lower cost**

Kurt Siegenthaler is keen to emphasise that the NIS will not be overpriced, but sold at a competitive rate to the existing IS machine. Furthermore, Emhart Glass has no plans to cease production of the standard IS machine and will continue to sell it alongside the NIS. "The glass container has to compete economically with other packaging and our role at Emhart Glass is to contribute with major technological breakthroughs, by offering improved technology at lower costs".

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*\*\*Emhart Glass SA, Cham, Switzerland.  
Fax +41 41 749 42 71.*