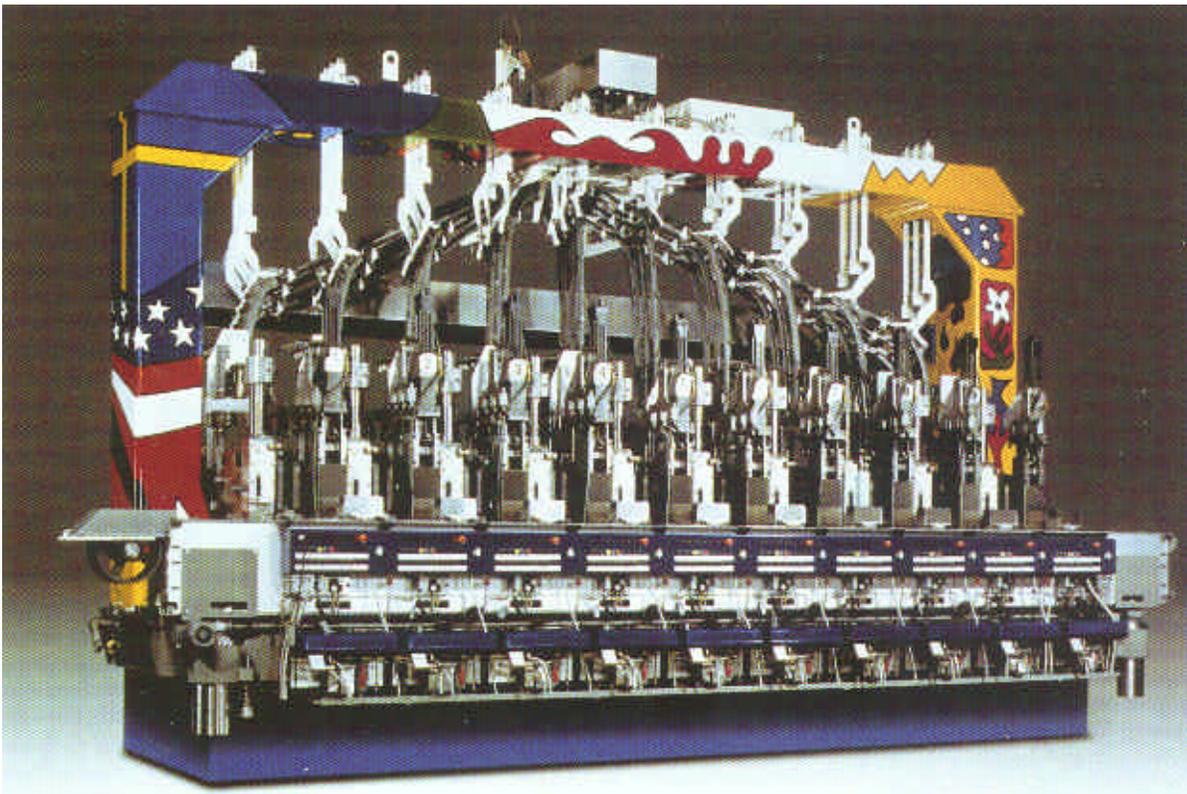


IS MACHINES

NIS - the first servo-electric IS machine

AT GLASSTEC 2000, EMHART GLASS PRESENTED AN INNOVATIVE LOOK FOR ITS NIS MACHINE, BOTH TECHNOLOGICALLY AND AESTHETICALLY. PIPING HAS DISAPPEARED, NOISE LEVEL AND ENERGY REQUIREMENTS ARE SIGNIFICANTLY DOWN.

VALERIE SCOTT



Front view
of the
brightly-
decorated
NIS
machine

PRESENTATION OF THE NIS MACHINE

Emhart Glass, the Swiss producer of IS machines, which has been on the market for over 80 years, presented its Next-Generation IS machine (NIS) among the highlights of Glasstec 2000 trade fair, in Dusseldorf, Germany.

According to Emhart Glass NIS is the first IS machine to operate completely servo-electrically. During the fair, the company presented the highlights of the NIS technology to the press at the Emhart Glass manufacturing facility in Neuss, near Dusseldorf.

Emhart Glass regards NIS as a major step towards automating the time-proven IS machines. The new machine has independently operated sections, with operating controls located at each section. This, combined with the

various centre distance configurations and mould requirements, makes it identical to the well-proven IS standard. However, all mechanisms operate and coordinate their actions using closed-loop AC servo-electric technology, which replaces the

pneumatics. Operating air and piping within the section are eliminated as process air is ducted through manifolds in the bed and directly into the cavities.

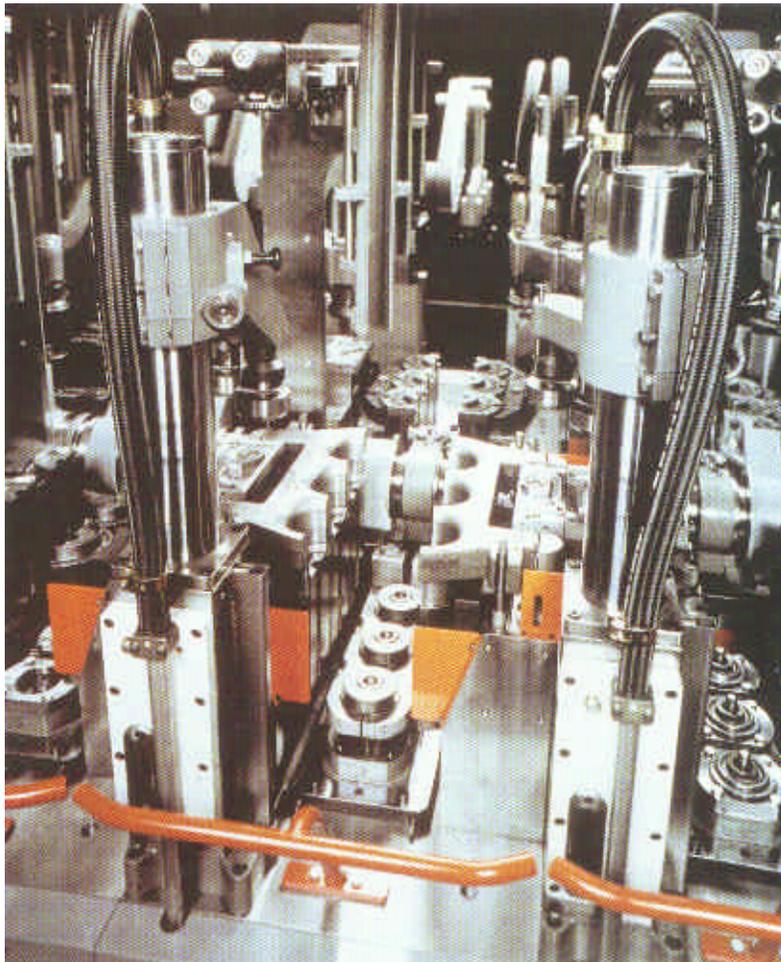
The machines have been decorated using pop-art by Andi Luzi, a well-known Swiss artist. Mr. Kurt E. Siegenthaler, President of Emhart Glass, decided on such a lively design for his machines after having seen some cow statues, painted in bright-coloured pop-art by the artist, exposed throughout Zurich, Switzerland, in 1999.

SAME SPACE, MORE TECHNICAL POSSIBILITIES

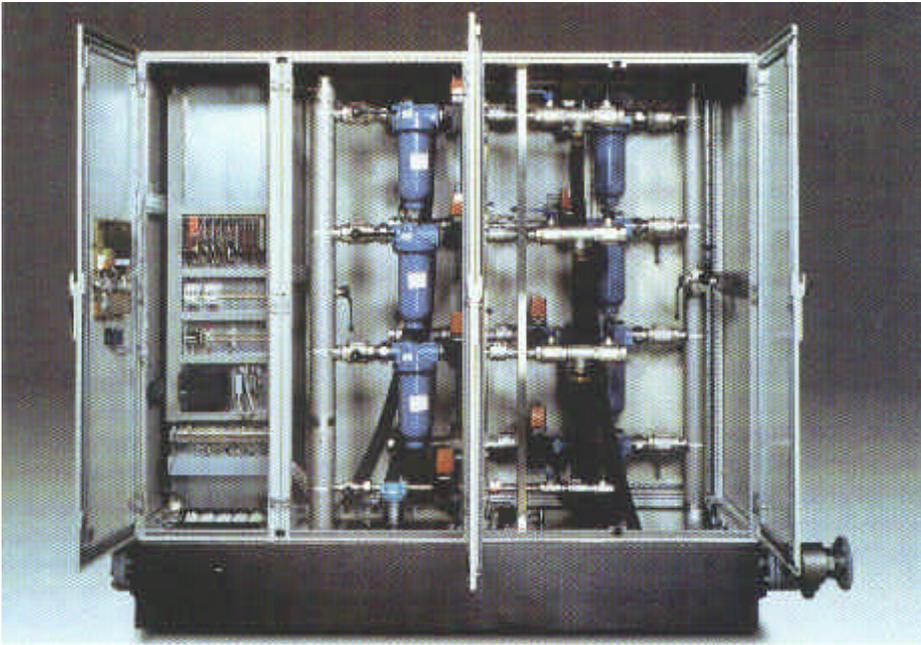
Emhart Glass underlines that, despite the presence of nine servomotors in each section, NIS and its control cabinets occupy the same footprint and space as an IS machine. NIS is supported by a very compact Ethernet/TC-PIP control system, which offers a range of Windows 2000-based software applications, including scheduling and cycle optimization. Key elements such as acceleration, velocity displacement and closing force on the moulds are programmed to ensure smooth contact during closing. Emhart Glass foresees that the servo-electric



Rear view of the machine



Blank side view of the servo-electric MOC



has also been achieved, therefore providing a safer and more pleasant work environment. At the same operational speeds one traditional IS machine makes as much noise as four NIS machines.

With NIS, a new Emhart Glass centre distance, 5" TG, was presented, allowing the production of 75-cl wine-, 1-litre juice- and 1-litre water-bottles in triple-gob operations. To support such high tonnage levels, a 54" -wide forehearth has been commissioned which can pull up to 200 US tons a day. During the machine demonstration, Emhart Glass showed visitors how accessible the section has become with the elimination of mould brackets and the valve block, as well as its lower

MCU-the programmable machine control unit, where all supplies are centrally controlled

MOC will eliminate the continuous slamming of moulds, hence increasing their life by up to 30% in high-speed environments.

According to the company, the NIS technology can be applied to all current and planned container products, allowing for continuous process monitoring and event control. On-line monitoring of mechanism motion is given in order to carry out preventive maintenance. The storage of job settings and mechanism motions also allows for full job duplications to be achieved.

Complete computerization means that there is total control of feedback and motion control, while acceleration and velocity, as well as displacement and force, can be programmed.

Manual adjustments to compensate for thermal expansion of mould equipment are no longer necessary, since work is loaded to the machine from a disk, thus making fewer adjustments necessary.

COST, TIME AND NOISE REDUCTION

Emhart Glass stresses that cost savings for compressed air are significant compared with conventional IS machines. A 10-section NIS operating at 10 cycles has been measured to realize savings of eight million cubic meters of compressed air per year. Depending on the kWh prices, such savings can reach up to US\$200,000 annually. The electric energy required to operate mechanisms of 10 sections has been measured as low as 30 kWh.

Based on nearly two years' experience under glass, Emhart Glass believes that NIS will offer greater repeatability, therefore delivering a more consistent quality of glass. Workout time is reduced by half, as mechanisms self-align to pre-programmed positions, regardless of the thermal state of the machine. With the elimination of operating and cooling air, a drastic reduction in noise levels

position. Mould equipment has therefore become more accessible for faster job changes due to the elimination of the bulky mould brackets. Automatic section alignment is secured at each start-up.

FROM TYPEWRITERS TO COMPUTERS

During the presentation, Mr. Siegenthaler compared the difference between NIS and IS machines to that between a computer and a typewriter: both arrive at the same output, but the former performs the task more easily, faster and offers variety. Nevertheless, the company also pointed out that, unlike computers versus typewriters, the price of an NIS and an equivalent IS machine remain the same.