



*SMI's HSR stretch-blow moulder:
Power reduced, savings up, production increased*

A golden thread

SMI's response to the pressing demands of the beverage industry for faster, more efficient and reduced power consumption production systems is the High-Speed Rotary (HSR) series. This is a new range of rotary stretch-blow moulders, offering an output of up to 2,500bph per cavity (0.5l bottles). According to the company, the new machine offers a reduction in power consumption of up to 30% compared to traditional solutions. SMI claims that the machine's compact and ergonomic design greatly simplifies running, cleaning and maintenance and allows the user to save valuable space inside the bottling line.

Preforms heating module

The company examined each of the machine sections in turn with a view to improving performance and efficiency. These included preforms feeding, heating module, stretch-blow moulding stations, bottle unloading. A particular feature involved simplifying the machine's mechanical components by a mechanism for changing the pitch of the preform-holding spindles. This system has now been patented by SMI and the company claims cleaning and maintenance, as well as operating efficiency have been enhanced as a result.

A further improvement, according to the company, involves the elimination of the spindle-holding chain inside the heating module, thus reducing the mechanical stress to which the machine is subject, and incidentally reducing machine jamming and downtime. When SMI investigated the preforms heating system, they devised a thermodynamic reflection system bringing high energy savings compared to conventional systems.

This system heats the preforms using five infrared lamps on the front panel and only one IR lamp on the counter-panel. This means an average decrease of 40% installed electric power and a power consumption energy saving of up to 30% compared to conventional preforms heating systems, which require 10 or 11 IR lamps to achieve the same results. The modular design means that lamps are easy to remove and replace.

Stretch-blow moulding carousel

The preforms' pre-stretching, stretching and blow moulding lock are mounted on the moulds. The valves unit, the stretch rod and the blow-moulding piston are grouped in a single integrated module, a technology developed by Swiss company Seitz. The company claims the motorised system will perform 25million cycles service-free). In addition, all the settings of the downward profile of each stretch rod can be changed. The grippers have also come in for some attention. These grip the preform and

release the bottle during the stretch-blow moulding process. By introducing a novel technical solution, the preform's neck remains firmly anchored to the grasping gripper during the bottle's entire production cycle, with advantages in terms of stretch-blow moulding operation precision and preform neck protection.

Motor drive and man-machine interface

The control panel is integrated into the system's structure and a simple, user-friendly interface allows the operator easy control of all production operations, while also providing a full set of data in real time on machine running. Additionally, a single central motor transmits motion to the system's various mechanical components. Smiform's new stretch-blow moulders of the HSR series feature an automation and control system based on Sercos III fieldbus and Ethernet communication technology.

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