

The new ECOBLOC® integrated systems



The benefits gained from the technological innovations applied to the ERGON EBS stretch-blow moulders, are further enhanced, when they are combined with a filling and capping module to form an integrated ECOBLOC®

ERGON system. The SMI integration of the three main wet area operations into a single block, makes it possible to achieve optimum performance at reduced costs for the production, filling and capping of rigid containers of up to 10 litres. This solution does not require connecting conveyors between the stretch-blow moulder and the filler, and in most cases, not even a rinser (the empty bottles are blown, filled and capped on the same machine without risk of contamination from the external environment). ECOBLOC® ERGON systems are available in various models for use on bottling lines of still and carbonated beverages, milk and edible oil, and have a filling technology that uses high-efficiency valves controlled by flow meters. The electronic control of operations provided by this solution ensures a very precise and fast process. Even the prep times for the machine wash cycle have been reduced by integrating the use of dummy bottles into the valve. The ECOBLOC® ERGON systems, filling and capping module, is a new design featuring a modular, seamless frame, equipped with access doors made of highly resistant and durable tempered glass. Additionally, the automation and control system, equipped with a very simple and intuitive human-machine interface, permits the entire block operation by a single line operator.

-  Compact modular design: overall dimensions reduced to a minimum
-  Easier management and control of the production cycle with less maintenance
-  Substantial technological content of the technical solutions offered
-  Electronic machine with transmission systems that utilize brushless motors with digital servo-driver
-  Low operating and maintenance costs
-  Excellent quality/price ratio: the "combi" solution does not require the installation of a rinser or conveyor belts between the stretch-blow moulder and the filler and accumulation conveyors
-  Low energy consumption and complete environmental compatibility of the stretch-blow moulding, filling and capping processes
-  Optional ReduxAir kit to blow bottles at reduced air pressure



the new age
of bottling



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NEW ECOBLOC® ERGON
STRETCH-BLOW MOULDING, FILLING
AND CAPPING INTEGRATED SYSTEM



ECOBLOC®
VIDEO
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New EBS ERGON stretch-blow moulders

The latest innovation by SMI for the production of PET containers up to 36,800 bph

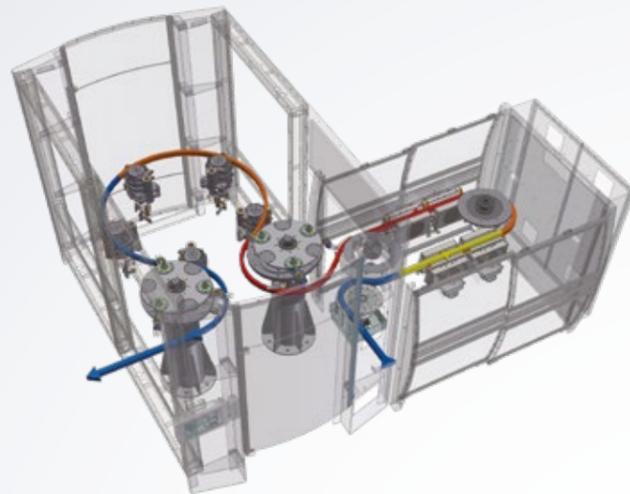
The new EBS (Electronic Blowing System) ERGON series of cam-free stretch-blow moulding machines featuring a fully electronic stretch-blowing process arises from SMI's 20-year-long experience in the manufacturing of rotary machines and is the outcome of a challenging Research & Development project lasted two years.

In more detail, the range of SMI blowers includes:

- 7 EBS ERGON models, from 4 to 16 cavities, ideal for the production of PET bottles with a maximum output of 2,300 bph/cavity*;
- 3 EBS K ERGON models, from 2 to 4 cavities, ideal for the production of PET bottles with a maximum output of 2,300 bph/cavity*;
- 3 EBS HC (High Capacity) ERGON models, from 3 to 6 cavities, specifically designed for the production of high-capacity PET containers with a maximum output of 1,200 bph/cavity*.

*Depending on the machine model and container's features.

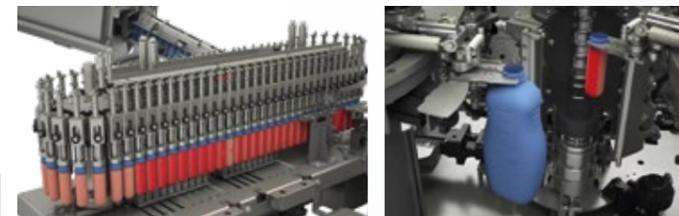
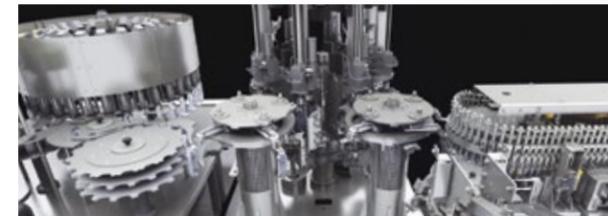
EBS ERGON machines boast a series of technical innovations applied to the stretch-blow moulding process. In fact, the blow moulding module of the ERGON EBS range is equipped with motorized stretching rods whose functioning is controlled by electronic drives with no need of mechanical cams. This new technology enables a precise descent of the stretching rod, an accurate control of its position and remarkable energy savings. Moreover, this new technology enables to adjust the stretch-blowing speed without mechanical interventions (cams replacement), and also greatly reduces the vibration stress that the blow moulding carousel undergoes in the traditional solutions. The ERGON EBS series also features high performance, low dead volume valves system which has reduced the pre-blowing and blowing times with the subsequent great advantage in terms of machine efficiency



and quality of the final bottles. The stretch-blow moulding systems of the ERGON EBS series are characterized by their compact, ergonomic and functional frame, which considerably simplifies machine running, cleaning and maintenance operations, and ensures significant space saving in the bottling line. Since the safety doors of the new ERGON EBS stretch-blow moulders have a rounded shape, there is more space inside the machine for cleaning and maintenance, which the operator can perform easily and safely. The ergonomics of SMI's new stretch-blow moulders is further enhanced by the advanced technology used by the MotorNet System® automation and control system, which ensures the constant keeping of optimal working parameters during the whole production cycle and directly adjusts the machine's settings, simplifying format changeovers.

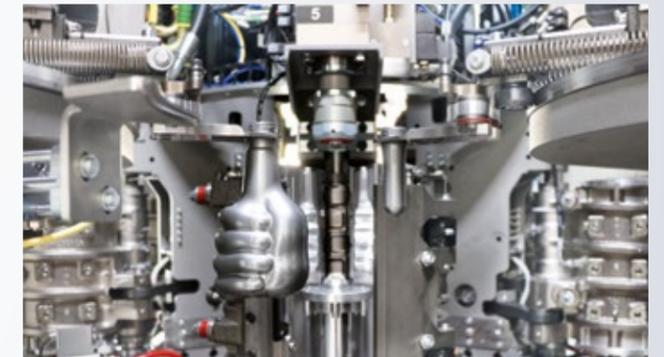
New preform heating module

The stretch-blow moulders of the ERGON EBS range feature a new preform heating module, characterized by compact dimensions, horizontal frame of the preform-holding mandrel chains (37 mm pitch for bottles up to 3 L and 54 mm pitch for bottles up to 10 L), and an optimized ventilation system. The innovative concepts used in designing the new range of ERGON machines allowed us to shorten the heating module by 50%, thus reducing the number of preforms that are in transit in front of the heating panels at a given time. The new preform heating module is equipped with heat-reflecting, high energy efficiency panels made of composite materials positioned both on the front and to the rear of the heat lamps in charge of preforms heating. This innovative solution ensures a high reflection of the heat generated by the lamps and its more uniform distribution on the preforms surface. Thanks to their cutting-edge technical solutions, SMI's new ERGON EBS stretch-blow moulders feature low energy consumption along with the comprehensive environmental compatibility of the stretch-blow moulding process. Finally, the new configuration allowed us to eliminate the star wheel between the exit of the preform heating module and the inlet star of the stretch-blow moulding carousel, with many advantages in terms of shorter preform transfer time, less heat dissipation and greater simplicity of the mechanical movements.



A fully "cam-free" stretch-blow moulding process

Another important innovation is the motorization of the mechanical mould unit, that has turned the ERGON EBS stretch-blow moulders into a real "cam-free" system through its integration with the electronic stretching rod. This leads to significant advantages in terms of greater kinematical accuracy, less maintenance, less vibration, less noise and longer system life. With only a single servomotor, the new configuration handles both the up & down movement of the bottom of the mould and the opening & closing of the mould-holding unit, greatly reducing mechanical stress and noise, which this machine section is subjected to in the traditional cam-equipped solutions. Thanks to this new technology, the dead angle of the stretch-blow moulding carousel shrinks by as much as 10° if compared to the previous generation range, making the structure much more compact. Furthermore, the mould-holder's opening/closing movement are optimized according to the effective diameter of the bottles to be produced. Since this leads to a gradual reduction of the opening/closing stroke, the stretch-blow moulding cycle is shorter as the container's



Preferential heating

By using a standard heating process, the expansion of material is uniform in all directions; for this reason this is unsuitable for the production of non-cylindrical containers; indeed, the use of a standard heating process on a non-cylindrical container would lead to the premature cooling of non-stretched material, causing non-uniform thickness zones on the final container. Preferential heating uses a differentiated/dedicated temperature profile, allowing the preform to expand in a controlled manner and take the specific shape of the mould. Preferential heating thus enables to:

- have a better material distribution; in particular it allows to obtain uniform thicknesses on complex containers (i.e. asymmetric, non-cylindrical)
- eliminate zones with an excessive thickness
- facilitate the labelling
- optimize the weight of a particularly complex container

Therefore preferential heating is suitable for the production of containers for detergents, cleaners, cosmetics, pharmaceutical products, sauces, condiments and some alcoholic beverages with the ratio of the long and short side exceeding 2.

"Reduxair" system

The "ReduxAir" system allows to carry out stretch-blow moulding operations at lower pressures than usual. By an innovative design and specific technical solutions this system allows the air between the bottle's outer walls and the mould's surface to be released more quickly; thus, the PET bottle manufacturing process can be carried out with compressed air pressure at 15-20 bars (such a value depends on the preform and bottle features and on the stretch-blow moulding process conditions). The great advantage the ReduxAir's user can benefit from in terms of lower power consumption of the compressor requires a few design limitations in the bottle's shape and features.

