

The new ECOBLOC® K integrated systems



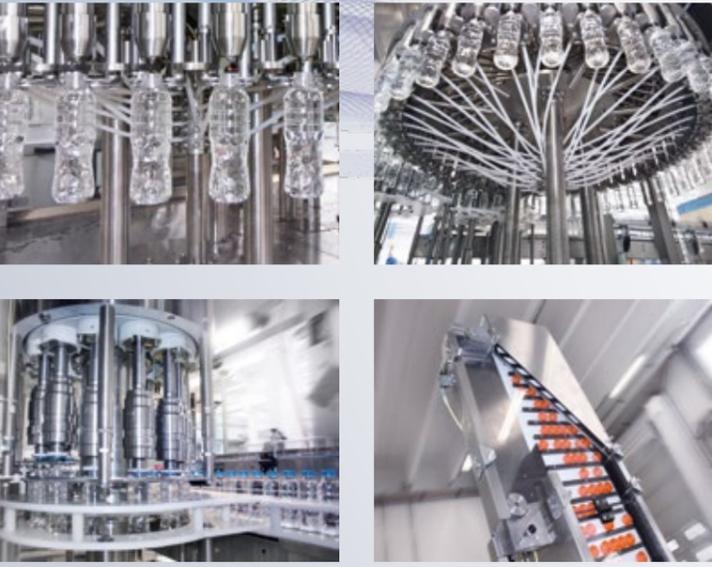
The benefits gained from the technological innovations applied to the ERGON EBS K stretch-blow moulders, are further enhanced, when they are combined with a filling and capping module to form an integrated ECOBLOC® ERGON K

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 3 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 K systems are available in various models for use on bottling lines of still water and milk (VMAG/EV models), edible oil (VMAS), and carbonated water and soft drinks (LG/VMAG) 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 K 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. The transmission system of the filling module utilizes independent axes, made possible using brushless ICOS motors equipped with an integrated driver. 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.

-  Ultra-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 an integrated 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



New EBS K ERGON stretch-blow moulder

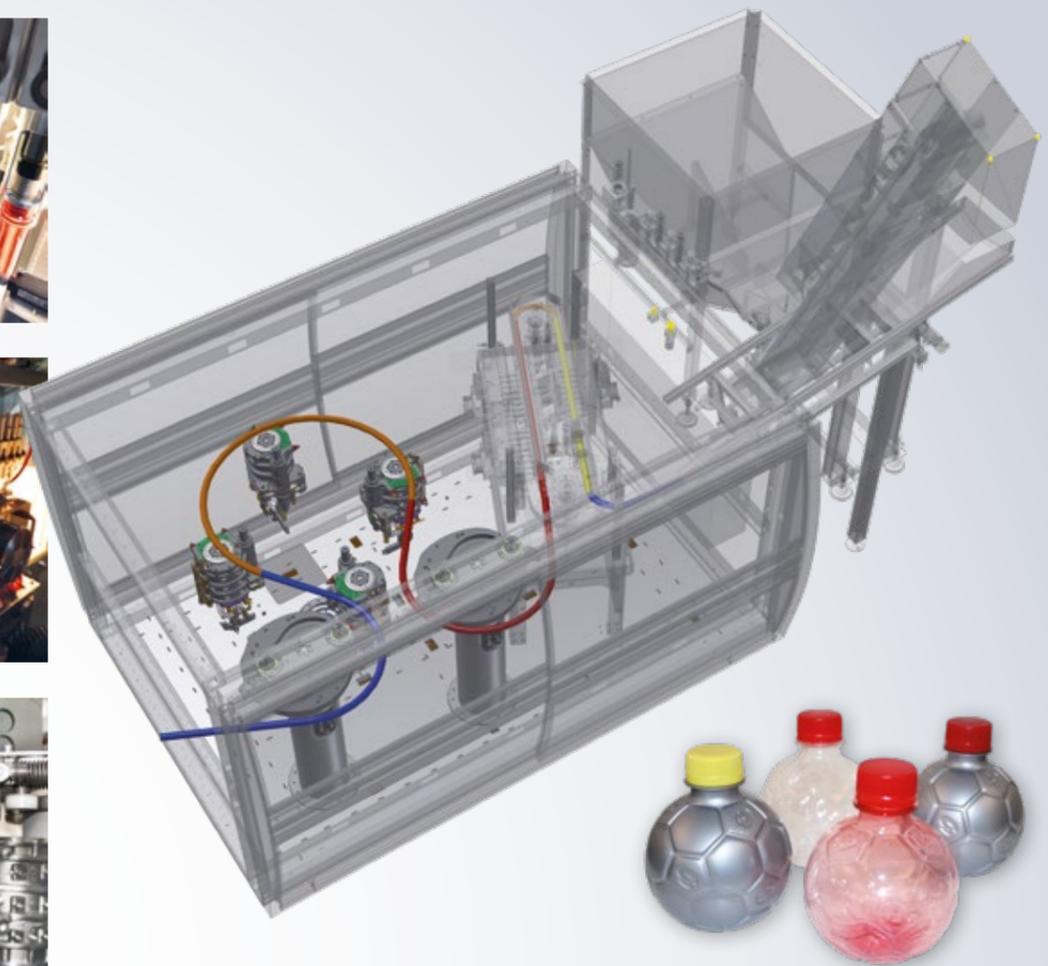
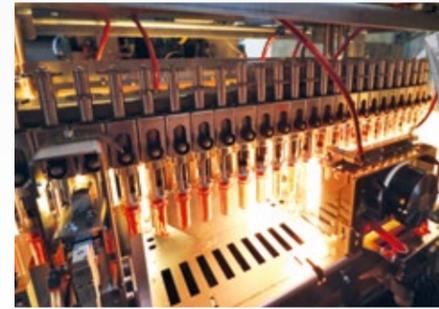
The latest innovation by SMI for the production of PET containers up to 9,200 bph

THE SMI EBS (ELECTRONIC BLOWING SYSTEM) SERIES OF COMPLETELY ELECTRONIC ROTARY STRETCH-BLOW MOULDERS MARKED THE BEGINNING OF THE "NEW AGE OF BOTTLING". A TRUE REVOLUTION IN THE PRIMARY PACKAGING MACHINERY INDUSTRY, THAT THE SMI RESEARCH AND DEVELOPMENT DEPARTMENT DECIDED TO TAKE EVEN FURTHER.

Starting from the countless technical innovations introduced on the ERGON EBS series stretch-blow moulders, SMI designers have developed a new series of extremely compact, rotary, stretch-blow moulders called EBS K (the letter K of the name comes from the German word "Kompakt"). Capable of satisfying production demands of up to 9,200 bottles/hour, the new models are available in 2, 3 and 4-cavity versions, and offer all the advantages of rotary technology in a "speed" range (1,000 to 9,200 bottles/hour), traditionally served by linear stretch-blow moulders. In fact, due to advanced technological solutions, the ERGON EBS K range is capable of producing PET containers up to 3L, with output up to 2,300 bottles/hour per cavity for 0,5 L formats. The new SMI compact stretch-blow moulder offers a long list of advantages that make it stand out in its market:

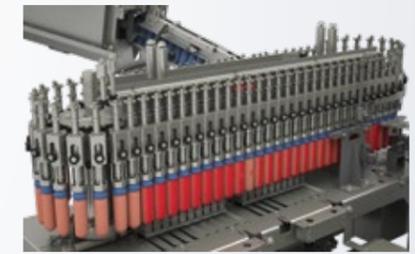


- The preform heating section (tunnel) is integrated with the stretch-blow moulding section (carousel) in a single, extremely compact module, that makes the system suitable for installation even on small bottling lines.
- The structure that contains the tunnel and the carousel is equipped with slightly rounded safety doors, providing more space inside the machine to perform cleaning and maintenance tasks easily and safely.
- The carousel of the stretch-blow moulder is equipped with motorized stretch rods controlled by electronic drives and do not require mechanical cams. This innovative solution ensures precise control of the stretch rod's path and position, as well as significant energy savings. It also makes it possible to change the stretching speed without mechanical intervention (switching cams) and greatly reduces the vibration stress on the blowing carousel compared to traditional solutions.
- The stretch-blow moulding system uses high-performance, low dead-volume valves that reduce pre-blowing and blowing times, thereby improving efficiency and the quality of the bottles produced.
- The mechanical group of the mould is equipped with its own motorization, which ensures the utmost precision for the up/down motion of the mould bottom and the opening/closing of the mould-holder unit. The integration of this innovative solution with the electronic stretch rod system, makes the SMI ERGON EBS K stretch-blow moulders a "cam-free" system, with considerable advantages in terms of greater kinematic accuracy, less maintenance, less vibration, less noise and increased system life.
- The machinery is managed by the Motornet System® for automation and control, which ensures constant maintenance of optimum processing parameters throughout the entire production cycle and the direct modification of machine settings, thereby simplifying format changeover operations.



The most innovative feature of the K series is the heating module!

The ERGON EBS K stretch-blow moulding system has an innovative preform heating module with an extremely compact design, this allows it to be integrated in the same machine module with the stretch-blow moulder carousel. The module features a horizontal preform feeder chain and an optimized ventilation and aeration system. Moreover, the infrared lamp units, responsible for heating the preforms in transit, are equipped with a system of thermo-reflective panels made of a highly energy-efficient composite material situated both in front of and behind the lamps. This technically advanced solution ensures excellent reflection of the heat generated by the IR lamps, and consequently ensures a more uniform distribution of the heat over the entire surface of the preform. The inside of the module is also equipped with an aluminium diffuser, to provide optimal temperature control and prevent overheating problems. The blow-moulding pressure is automatically regulated according to bottle format, offering unquestionable advantages compared to the manual adjustment solutions used on the linear stretch-blow moulders that SMI EBS K models compete with, by producing from between 1,000 and 9,200 bottles/hour. The new machine also comes standard with a double-stage air recovery system called AirMaster. The new ERGON EBS K rotary, stretch-blow moulders have a very attractive quality/price ratio and also provide savings on installation and start-up costs, as the compactness of the system permits these operations to be performed in a single day.



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.



	EBS 2 K	EBS 3 K	EBS 4 K
MAX OUTPUT SPEED (0,5 L)	Up to 4.600 BPH	Up to 6.900 BPH	Up to 9.200 BPH