

Increased efficiency and sustainability for large-capacity bottles

High-capacity containers, such as 5, 8 and 10l bottles, are attracting growing interest, especially among companies seeking 'green' and efficient solutions. Large volume bottles require fewer containers for particular product volumes, which means that logistic, handling and disposal costs can be reduced, according to SMI S.p.A. The company's advanced centre for 3D design specialises in devising solutions for rPET bottles of different sizes and shapes that are 100% recyclable, resistant, light and energy efficient.

PET containers of up to 10l produced and filled on a single machine are, increasingly, seen as an optimal solution for mineral water and edible oil manufacturers.

SMI's Ecobloc Ergon KL HC groups the whole wet section of the bottling line into a single system that performs stretch-blow moulding, filling and capping. The system does not need conveyor belts between the blow moulder, filler and collection area, which helps to ensure a controlled and flexible production process, the company says. The entire wet section, which does not require a rinsing, can be managed by a single operator, reducing energy consumption and thus improving sustainability. SMI's machine also integrates preform heating and stretch-blow moulding sections into a single module, which occupies a more compact footprint than other integrated systems currently available.

The design is easily adaptable to small bottling lines, helps to reduce transport costs and cuts installation and start-up to just a few days.

Ecobloc Ergon KL HC systems can produce and bottle liquid food and beverages at up to 7,200 bph, depending on bottle size and features.

Features and characteristics

The preform heating tunnel is equipped with thermo-reflective panels, made of energy-efficient composite material, placed to the front and rear of its IR lamps, to ensure high reflection and more uniform distribution of heat over preform surfaces. An aluminium diffuser, integrated into the tunnel, is claimed to ensure optimal temperature control and to avoid overheating.

The stretch-blow moulding section is equipped with an AirMaster double-stage air recovery system. The standard air recovery system is accompanied by a second circuit, which recovers and recycles air from the blowing process, which saves energy

consumption by the compressor. The blow moulding unit is equipped with motorised stretch rods, controlled by a cam-free electronic drive, for precise management of their path, accurate positioning, and improved energy performance, compared to traditional solutions. This system allows stretch speed modification without mechanical intervention.

The mould's mechanical unit has its own motorisation, to precisely control vertical movements of the base and the holder unit opening and closing. Low dead-volume valves optimise energy and compressed air consumption. Isolation between the dry section of the blower and the wet section of the filler ensure the perfect separation between the two modules.



The introduction and return of the washed product take place in the lower part of the machine, by means of a ceramic collector equipped with two gaskets (sealing and a safety) with inspection light. This maintains separation between wet collectors (product and CIP return) and dry collectors (electric and pneumatic), as well as high durability. Filling and capping modules have a modular, unwelded frame, equipped with highly resistant, long-lasting tempered glass access doors. The filling module is equipped with electronic meters, for precise filling. Machine areas in contact with the product to be bottled are made of stainless steel and glass, for hygiene.

Optimisation of carousel placement inside the frame has enabled reduced dead angles, which helps productivity. The filling module is equipped with automatic insertion dummy bottles, for fast format changeover and reduce operator intervention.

The Ecobloc Ergon KL HC is designed to reduce plant maintenance and management costs.

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