СИСТЕМЫ УПАКОВКИ И РАЗЛИВА ABF 2.0

Технические характеристики

THE ASEPTIC BLOW FILL PROCESS

When it comes to food and product safety assurance throughout the entire lifecycle of a machine, the ABF 2.0 represents the state of the art in the aseptic technology market, especially for the highest sensitive products.

Preform VHP treatment

Preforms are treated with ionized air to remove fine dust before entering the oven where they are heated to achieve the appropriate thermal profile. These are then transferred to the sterilizing wheel.

Preforms are decontaminated both internally and externally using a robust and controlled Vaporized Hydrogen Peroxide (VHP) treatment. This controls the microbiological isolator bioburden during the entire process. Performance is at the highest level for the category.

While it is possible to reach up to log 6 decontamination inside the preforms, the system achieves peroxide residuals compliant with the requirements of the most stringent food safety protocols.

Preform VHP treatment.
The VHP treated preforms are transferred from the sterilizing wheel to the Aseptic Blow Molder.

Aseptic blow molder.
The sterilized preforms are blown with sterile air in an aseptic environment.

Preform inlet

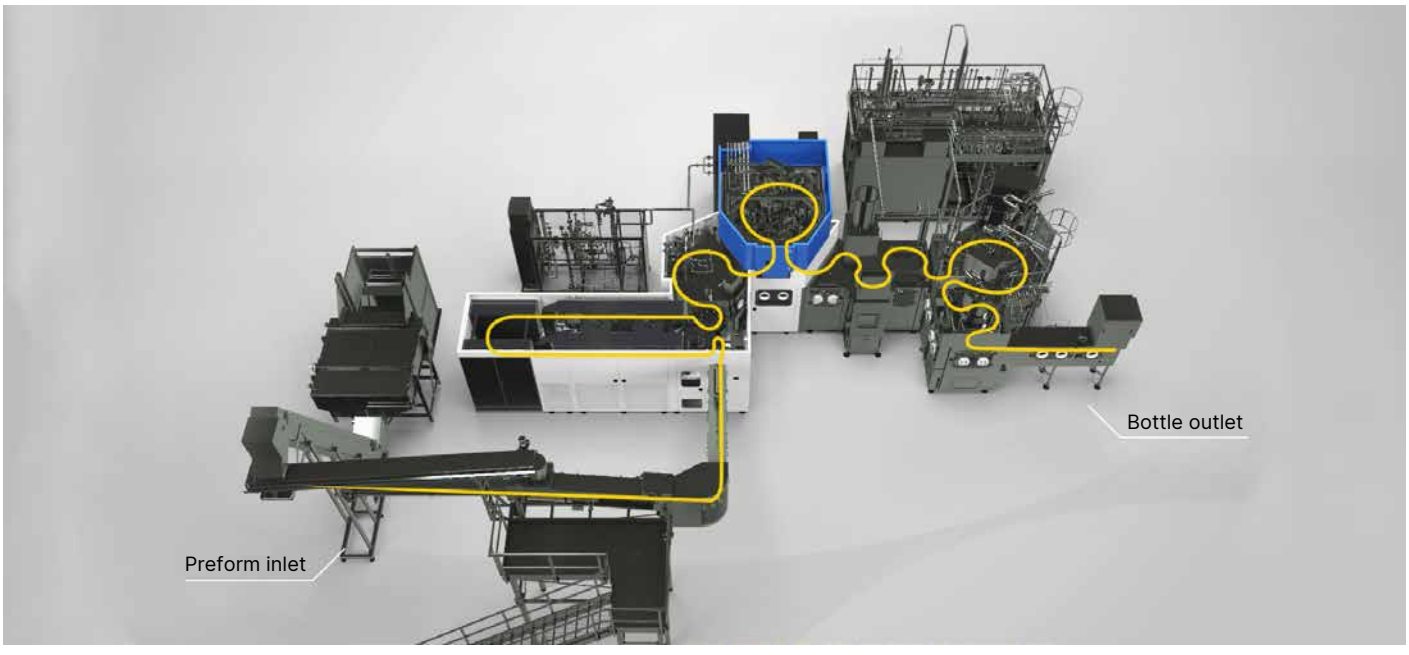
Aseptic blow molder
The sterilized preforms are blown with sterile air in an aseptic environment, then transferred to the GEA Fillstar. During SIP and SOP operations the internal surfaces of the aseptic blow molder isolator, the air circuits and the stretching rod are sterilized with VHP.

Fillstar: the aseptic filler
The Fillstar provides a flexible approach for a variety of applications. The filling valves have the last section inside the microbiological isolator and are equipped with flow meters to guarantee high filling accuracy and performance. The GEA patented automatic dummy bottles create a closed loop for the CIP and allow the use of steam to sterilize inside the product pipes: this is a sustainable solution that avoids the use of over pressurized water for the SIP (sterilization process).

Aseptic capper and cap sterilization system
The ABF 2.0 offers maximum flexibility when treating both sport and flat caps as well as aluminum foil closures. Both closure sterilization modules use a VHP-based technology and offer quick changeover without loss of sterility.

The capper module is specifically designed for aseptic applications and completely embedded in the microbiological isolator. GEA provides a patented electrical barrier that effectively separates the sterile zone from mechanical components that require lubrication; a hygienic design with no bellows that's easy to clean; and full traceability of the capping process to achieve maximum product safety.

Aseptic filling.
The GEA aseptic fillers offer a flexible approach to a variety of applications.



ABF 2.0: SYSTEM EVOLUTION FOR SUSTAINABILITY.

The evolution of Aseptic Blow Fill technology, including layout reduction and mechanical simplification, can increase sustainability and line efficiency.

The ABF 2.0 is the natural evolution of GEA Aseptic Blow Fill technology: its development has been focused on mechanical improvements to increase the efficiency of the line, minimize consumption and environmental impact, while aiming to offer customers its characteristic outstanding safety and quality of the final product.

- The optimization of the heating modules reduces the electrical energy and air consumption while guar-anteeing the proper preform temperature profile. This also results in a significantly smaller oven footprint compared with the previous generation.
- The ABF 2.0 uses very little chemicals and no water during production. The system features a completely dry decontamination technology for preform and cap sterilization which leaves the minimum of chemical residuals in the containers.
- The preforms are transferred in the system without tilting to achieve a smoother performance, reduced footprint and number of transfer star wheels, results in reduced maintenance time and costs.
- The air used for the bottle blow molding process is sterilized by a redundant filtering system and conveyed through a fully aseptic circuit. It is recovered and reused, reducing Total Cost of Ownership (TCO).
- The cap sterilization module offers a gentle treatment performed at reduced temperatures that avoids overheating the caps and optimizes the energy consumption; this is a buffer solution that enhances the Overall Equipment Efficiency (OEE) of the line.

Microbiological isolator

A clearly identified sterile zone with minimum surfaces allows the sterile area to be easily cleaned and sterilized before starting a new production cycle or after a format changeover.
All the components inside the isolator are resistant to the chemicals for COP/SIP/SOP: on a periodical basis a foaming cycle can be performed.
The over-pressurized isolator system, with sterile air in the sterile zone, continuously preserves sterility and guarantees a safe environment for the preform/bottle during production.

The sterile air blowing

Sterile air to blow the sterile preforms is provided through a circuit with double-redundant filtration; a dedicated system sterilizes the air piping with VHP from the filters to the blow

Microbiological isolator.

With the ABF technology the aseptic stretch blow molder is located within the microbiological isolator.

molding stations. For this reason, GEA developed a specific patented air blowing valve block that can be sterilized while maintaining reactivity, reliability, ‘reduced pressure drop’ and ‘reduced dead volume’ for TCO optimization.

Sterile stretching rod [patented]

All the parts that touch the sterilized preform and/or the bottle must be sterile before starting production, so it’s mandatory to have a sterile stretching rod. The GEA system (patented) allows the stretching rod to be kept inside a sterile housing, that can be sterilized with VHP during SOP cycles.
The movement is achieved by a magnetic joint between two magnets: an internal magnet connected with the stretching rod inside the housing and an external one moved by a brushless motor.

Aseptic blow molder.

The internal surfaces of the blower can be cleaned by foaming and sterilized with VHP before starting the production cycle.

This also provides the benefit of allowing the automatic disengaging of the magnets if a preform jams during the stretching phase.

The sterile pneumatic compensation

A single-side opening mold system featuring patented pneumatic compensation ensures a perfect mold closure and avoids ’parting lines’ on the blown bottle.
The pneumatic compensation circuit is fed with sterile air during production and managed with a dedicated aseptic valve block.

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